"CRISIS ON THE COAST"

Federal On Scene Coordinator's Report and Assessment of M/V NEW CARISSA Oil Spill Response

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Chapter 1 The Grounding and Initial Salvage Attempt

The Grounding

See the Executive Summary of the Incident for a general description of the grounding about three miles north of Coos Bay, Oregon. The Coast Guard investigation of the grounding pends and is the subject of a separate report. The vessel, of 44,527 DWT, grounded in approximate position 43-23.9N, 124-19W. It was in partial ballast with 359,000 gallons of bunker oil in six tanks and carried 37,400 gallons of diesel fuel. The Master was Captain Benjamin Morgado and there were 26 persons on board.

The Initial Assessment

Soon after the grounding, which occurred at about 0830 on 4 February, a number of Coast Guard experts and others were notified of the incident and were enroute the scene to assess the situation and take necessary action. This included two Coast Guard marine inspectors from Marine Safety Office (MSO) Portland who were in the Coos Bay area. One had arrived the prior evening to be ready to conduct a Port State Control boarding of the NEW CARISSA on 4 February. Both would instead conduct the initial assessment of the vessel's condition and assist with drug and alcohol testing that day. Other Coast Guard personnel heading to the grounding were several members of MSO Portland; the Pacific Strike Team, and two District Response Advisory Team (DRAT) members from Coast Guard District 13 in Seattle, WA.

NEW CARISSA's agent, Mr. Paul Monk of International Shipping, was in Coos Bay when the grounding occurred and proceeded to the site, as did Mr. Dick Lauer of Sause Bros. Ocean Towing Co., Inc. who was the acting Pollution Manager of the Coos Bay Co-operative. At 1140, MSO Portland was informed that Mr. Lauer was on the beach near the site, and that to his knowledge and observations, no oil had been released. Nonetheless, within a few hours a beach assessment team would be established and a five-person team begin to monitor the sand dunes near the grounding site.

Coast Guard Air Station North Bend operations would prove to be an invaluable part of the response, providing aerial reconnaissance, evacuation of the ship's crew, critical transportation of people and equipment to and from the ship, and a platform for detonating explosives aboard the ship; all essential functions which might not otherwise have been accomplished. During the extended period of the response they would successfully conduct well over 300 airlifts. Air Station-Group North Bend also provided their facilities for the forward command post for the early stages of the response. The Air Station requested a Temporary Flight Restriction area around the grounded vessel to reduce interference with Coast Guard helicopters from aircraft from a nearby airport.

The Coast Guard made several attempts to determine the name of the vessel's qualified individual (QI) for the incident, and was informed by the agent that Mr. Bill Milwee, a salvage professional, was the QI and the Responsible Party's representative for the response. Early discussions were initiated with the vessel's pollution & indemnity club (P&I Club), The Britannia Club, represented by members of the Wood Tatum Sanders & Murphy law firm in Portland, Oregon.

Initial Salvage Attempt

Mr. Lauer reported in the first few hours that the vessel was still "lively." At 1140, a Coast Guard helicopter transferred Coast Guard boarding officers, rescue swimmers and a Coos Bay pilot, Captain Steve Woods, aboard the vessel. The pilot, using the ship's engines, was reportedly able to swing the vessel's stern almost perpendicular to the beach for a brief time, and apparently almost succeeded in backing it off the beach. We were advised about an hour later that strong waves had pushed the ship towards shore and over a sand ridge, depositing it about 800 feet off the beach. At that point the pilot decided to cease the attempt to maneuver the ship under its own power off the beach, and the ship took on ballast water to try to prevent further movement towards shore.

There is some chance that NEW CARISSA might have been freed during the pilot's effort then or sometime during the next three hours—before the next winter storm front arrived-- if tug boats or a salvage vessel had been on scene to help pull it off. There were no salvage vessels in the area or anywhere close by. (See discussion of salvage capacity in Lessons Learned. Salvage is often one of the most immediate and important requirements at the scene of a grounding or collision. A rapid and effective salvage operation may be all that is necessary to prevent or reduce a pollution incident, as well as prevent further loss of property.) There were some tugboats in Coos Bay on 4 February. The most powerful tug boat in Coos Bay that day was HENRY SAUSE, with a single screw and 2,800 HP and line pull of 85,000 pounds, or about 42.5 tons of bollard pull. There was also MOANA LOA, of similar design but less power, and two small pilot tugs. Had they tried to reach the ship that morning, they would have had to battle strong winds and waves and a rough bar. Furthermore, the swells and waves breaking around NEW CARISSA may have prevented any effort to pass a line between the grounded vessel and a tug, and would probably have diminished the pulling power of a tug.

Nonetheless, it was our understanding at the time that the responsible party (RP) was contacting local tugboat owners for possible assistance. We could not confirm with the agent or RP representative that any tugboats had been contracted, however. More recently we have learned that at least one tug boat was contracted by the RP in the late morning or early afternoon, then taken off contract for some reason. In the afternoon, the RP told the FOSC that there were only a couple of tug boats in Coos Bay, none with sufficient bollard pull to move the vessel off the beach, and that furthermore, conditions on the bar at that time would hinder their reaching the grounded ship. The high tide on 4 February was at 1415 and the bar was apparently passable at that time, as evidenced by the safe transit of a fishing vessel about then. But over the next hour or two the weather worsened. Winds on 4 February reached 30 knots and swells were 18-20 feet. If local resources had been contracted, and had been able to safely transit the bar, they may

have supplemented NEW CARISSA's own power enough to enable it to be freed. We will never know.

Mr. Milwee had discussed the incident with the owners of the 193-foot steel industrial salvage vessel SALVAGE CHIEF, and that vessel was going to come down from Astoria, OR on speculation, with an ETD of 0600 the next day, 5 February. A 24-hour transit was estimated, with an ETA of noon on 6 February. We were told the ship's owners had hired Smit Americas to act as Salvage Masters for this incident. The Smit team was due to arrive by corporate jet on 5 February in the late afternoon.

At 1841, the Marine Safety Center (MSC) Salvage Team reported that refloating the ship would require 250-350MT of pull to overcome ground reaction, which equates to about 100-150 tons of bollard pull. If there had been a window of opportunity to pull the ship off with local tug boats, that window had closed.

By 1700 on 4 February, the crew had been tested for drug and alcohol use and the ship's Master stated that the crew elected to remain on board rather than be evacuated by the Coast Guard. Throughout that day, and overnight, the crew continued to take soundings of fuel/oil tanks with no reports of any leakage. Weather forecasts for that evening were for the wind and waves to increase ahead of a stronger weather front approaching the area the next day. The Group-Air Station North Bend operations center put the vessel on a four-hour communications schedule to monitor its situation through the night.

On day two, 5 February, the crew was evacuated for their safety and the ship locked down tight. We learned that SALVAGE CHIEF was not under contract yet, and that the RP would defer to Smit to determine what firm to contract. Furthermore, it had taken about 18 hours for SALVAGE CHIEF to fuel, provision and equip the vessel appropriately before the Master and crew were ready to depart. The fact that salvage vessels are so few and therefore remote from most sites along the coastline, combined with the fact that existing salvage vessels may not be maintained in a "ready" status, heightens the risk that a grounded vessel casualty may evolve into a major oil spill. Winds on 5 February reached 45 knots with gusts to 70 knots, and swells reached 26 feet. Early in the afternoon we learned that the same storm that pounded Coos Bay had moved north, and rough conditions on the Columbia River Bar had prevented SALVAGE CHIEF from departing Astoria. The acting FOSC expressed concern with the delay and suggested that the RP consider deploying the AMERICAN SALVOR out of Long Beach. Mr. Milwee stated that it would take 36 hours for them to provision their vessel and about the same time to transit to Coos Bay, so that vessel would not be of any advantage over SALVAGE CHIEF. But the winter storm persisted, with Coos Bay winds that day at 45-50 knots with gusts to 70 knots, and swells of 22-25 feet. As a consequence, SALVAGE CHIEF did not depart Astoria until 7 February.

On 8 February, NEW CARISSA started to leak oil.

Chapter 2 In-Situ Burn

Assessment of Alternatives

Several different plans were developed and assessed between 5 and 9 February to deal with the threat posed by the roughly 400,000 gals of fuel oil onboard. Initially, the most feasible alternative appeared to be to store the ship's fuel oil onboard, either in intact tanks, or other more protected areas of the ship. The secondary alternative was to transfer the oil to bladders, barrels or tanks which would be loaded onto the ship then transferred off when full. The least feasible alternative was to lighter the fuel directly to bladders or tanks on shore. This alternative was least feasible due to multiple logistical constraints and variables, the most important being safety of personnel, which continued to be our number one priority.

In evaluating alternatives which would protect lives and the environment, two primary considerations included the vessel location (about 1000 feet from shore in pounding winter surf) and the action of the vessel (including a 10-20 degree roll and yaw, and jarring associated with broadside impacts of the 17-26 foot surf along the entire vessel hull). The situation was complicated by winds from 25 to 45 knots (with gusts to 70 knots) and swells from 15 to 26 feet, and frequent rain and sleet from 5 to 8 February. There was also an 8-10 knot longshore current between the vessel and the beach. These factors combined to severely limit access to the vessel, with a CG helicopter hoist being the only reliable method. These factors also were serious risks to the safety of anyone working aboard the vessel with heavy equipment. In addition, the viscosity of the oil aboard the vessel meant it would be very difficult to pump. Finally, all beach activities had to be planned to avoid potential damage to a sensitive nesting area for western snowy plovers, an endangered species of shorebird.

The rapid deterioration of the NEW CARISSA's structural integrity left us with even fewer options. The NEW CARISSA suffered progressive structural damage from 4 to 8 February and on 8 February began to leak oil. The vessel had been battered for days by the powerful breaking surf, swells, and winds. The ship's bottom plate continued to pound onto the sand, and the ship was stressed by an uneven and fluctuating load distribution along its length, caused by scouring of sand beneath the vessel by tides, swells and surf.

Assessment of the Ship's Integrity

The structural integrity of the NEW CARISSA was monitored continuously from the day it grounded. The extreme winds from 5-7 February meant the helicopters were unable to fly except for emergencies, but on 7 February, a salvage assessment team was lowered onto the ship from a helicopter. The team was composed of a Coast Guard marine inspector, a Navy SUPSALV engineer, two crew members of the NEW CARISSA and two people from Smit Americas hired by the RP. They found there was flooding in the lazarette and emergency fire pump room due to a damaged rudder post, but no other apparent damage to the structure or machinery of the vessel. However, the team had problems with the ship's service generators that overheated because sand was being drawn into the cooling water system. The team expected to stay overnight but ending up staying on board for three nights and four days.

On 8 February the salvage assessment team found fuel oil contamination in ballast tanks #4P, #5P and #5S, indicating the likelihood of internal breaches in the #4 and #5 fuel oil tanks and #1 diesel tank. Observers off the ship reported seeing oil "burping" out from under the ship in the way of the #1 and #2 fuel oil tanks, indicating a possible breach in the hull in the way of these tanks. By the evening extensive structural damage had been confirmed. A survey of the double bottom fuel oil tanks showed that the #5 fuel oil tank was holed (open to the sea), the # 1 and #4 fuel oil tanks were tidal but did not appear badly holed, and the #1 diesel tank (on the starboard side of the #5 fuel oil tank) was holed. The #2 and #3 fuel oil tanks appeared intact. The cargo holds were also in mixed condition, with #1, #2 and #3 intact, #4 with a slight breach, #5 and #6 tidal, and with significant groaning and creaking of steel at the bottom of the bulkhead between the latter two holds. The double bottom ballast tanks had some damage also, with some breaches likely in #4P and #4S and #5P and #5S ballast tanks.

SALVAGE CHIEF, the only resource directed to the scene which was considered capable of pulling the ship off the beach, arrived and moored within Coos Bay that evening. The seas were too rough for them to get into position for a salvage attempt, and towing gear had not been transferred onto NEW CARISSA. That night, swells continued at 15 to 17 knots, while small tar balls washed up on the ocean beaches outside Coos Bay.

On 9 February, the grounded ship continued to leak oil due to extensive structural damage. The stability had changed, and the vessel was rolling 15 degrees in the morning and up to 20 degrees later in the day. Heavy equipment, including a towing hawser, was loaded onto the ship by helicopter. Swells were 15 to 20 feet. SALVAGE CHIEF arrived on scene and attempted to position itself to pull NEW CARISSA off the beach. But by then winds and seas had driven the ship approximately 600 feet further shoreward, beyond the operational reach of the salvage vessel and its ability to safely anchor in heavy surf. The effort failed.

The Decision to Burn the Oil Onboard NEW CARISSA

On 8 February, NEW CARISSA had begun to leak oil due to structural damage. Multiple storm fronts were forecast to approach the area and threatened to breach the hull further. If this occurred, there was a high risk of a massive oil spill from the fuel oil aboard the damaged vessel. The FOSC decided that if the ship could not be pulled off the beach, the best alternative to avoid a significant oil spill was to burn the fuel oil on board the vessel where it lay grounded. For this plan to succeed, the burn had to take place quickly, before the next storm arrived.

Planning the Burn and Compliance with the Northwest Area Contingency Plan

On 8 February, the FOSC directed the Planning Section Chief (PSC) to begin rapid development of a new alternative: the in-situ burn of the vessel. The PSC consulted with a nationally known authority regarding in-situ burn methodology, testing, and fire boom development. The PSC also consulted with the NOAA Scientific Support Coordinator, who provided assistance with risk analysis, including weather predictions, and helped to assess the plans in accordance with the Northwest Area Contingency Plan (NWACP) In-Situ Burn Checklist. (See Appendix H for a copy of the checklist. See Chapter 13 for other information about the NWACP.) Three factors

are identified in the NWACP to determine if in-situ burning is appropriate. One factor is whether the oil has already ignited, which it had not. The other two criteria were met however, because burning offered a greater level of efficiency in removing oil than any other available options and substantially reduced the risk of impacts to sensitive resources.

The in-situ burn policy and checklist on in-situ burns in the NWACP were developed in anticipation of an in-situ burn of an oil spill on water rather than on a ship. For this reason, not all of the criteria in the check-list applied to the NEW CARISSA burn, and many of the challenges and considerations we faced were not addressed in the NWACP. Nonetheless, the checklist was very helpful. We are not recommending a revision of the NWACP to address in-situ burns on vessels because every vessel is structurally different and would likely require a unique approach to igniting and sustaining a fire.

As required by the NWACP, air quality impacts were modeled before the burn and monitored during the burn.

Given the short weather window available, and the need to penetrate steel tank tops to release the fuel from tidal fuel tanks up into the cargo holds, the FOSC requested the assistance of the Navy Explosives Ordnance Disposal team from Whidbey Island, Washington, to initiate the burn. Access to Navy resources is discussed elsewhere in this report.

Special Monitoring of Advance Response Technologies

Monitoring protocols to be used during an in-situ burn were developed well before the NEW CARISSA incident. These are called "Special Monitoring of Advance Response Technologies" protocols or SMART. They were developed in a cooperative effort by the Coast Guard, Environmental Protection Agency, the National Oceanic and Atmospheric Administration (NOAA) and the Center for Disease Control. A NOAA hazmat industrial hygienist who is also a SMART protocol development team member coordinated plume projection modeling through NOAA hazmat. Prevailing winds from the S-SW, along with the projected plume height, indicated a very favorable situation with no plume impacts to heavily populated areas expected. This information was presented in a plume monitoring plan to the Unified Command, the Planning Section Chief for the Incident Command System, the Coast Guard Integrated Support Command Seattle Industrial Hygienist, and county public health and emergency management officials. (See Appendix H for a copy of the SMART monitoring plan.)

When the burn took place, the monitoring effort was carried out using Pacific Strike Team SMART protocol instrumentation, members of the Unified Command safety staff from MSO Portland and ISC Seattle Safety and Health, and NOAA hazmat. The highest reported measured concentration for particulate in air was 1.5 $\Phi g/M^3$. This is well below the most stringent standard, which is the Oregon State 8 hour time weighted average concentration of 10 $\Phi g/M^{3.}$ All measurements were either below the minimum detection limits of the instruments, or well below established threshold limits.

Discussions with the Regional Response Team

The Northwest Area Contingency Plan (NWACP) gives the UC the authority to make the decision of whether or not to conduct an in-situ (on site) burn and states that the Regional Response Team (RRT) should be "notified/consulted with, where appropriate." The FOSC had requested a conference call with the RRT in Region X through CAPT John Veentjer, the co-chair of the RRT and the Chief of the Marine Safety Division for Coast Guard District 13. (The RRT is co-chaired by Mr. Chris Field of the Environmental Protection Agency.) The call was originally to discuss another subject, the potential use of chemical dispersants on the oil that had been spilled. But the situation had changed, and the FOSC instead used the call to discuss conducting an in-situ burn.

The FOSC informed the RRT that the proposed burn would adhere to the burn policy in the NWACP and was using the checklist to determine whether a burn would meet the RRT criteria. The policy and checklist rely upon modeling before a burn to determine whether conditions are safe, and monitoring during the burn to ensure conditions (air quality in particular) remain safe for humans. The agencies that comprise the RRT were invited to come to the scene to participate in the ICS/UC if they wanted to do so. The FOSC made himself available to any RRT members or other State officials with questions or concerns about the proposed burn. The RRT concurred with the burn during a phone call on 9 February.

Notification and Consultation with Local, State and Federal Public Health Organizations

An extensive information outreach effort to the affected communities and agencies preceded the burn. Among those with whom the action was discussed were the mayors of Coos Bay and North Bend, Oregon State and local law enforcement organizations, the governor, county emergency management, county public health, the Federal Aviation Administration, the U.S. Fish and Wildlife Service and other Department of Interior natural resource trustees, the Oregon Department of Fish and Wildlife, and the Federal Occupational Safety and Health Administration (OSHA). Law enforcement agencies and the county public health department assisted with the evacuation contingency planning and with plume monitoring. The Coast Guard issued a temporary security/safety zone rule (regulation) on the Pacific Ocean to safeguard work crews and the public during the burn. A copy of that rule is in Appendix H.

The Ship Is Declared a Total Loss

On 10 February, the engine room on NEW CARISSA flooded due to a major breach. The ship was then essentially totally disabled. It was no longer possible to pump any of the ship's ballast water or fuel oil using the ship's piping system. The salvage assessment team was removed from the ship. A 15 to 20 foot vertical fracture became visible in the shell plating on the starboard side of the vessel, at the forward end of the #6 cargo hold. NEW CARISSA was declared a constructive total loss by the ship's hull insurer.

The Final Decision is Made

The UC knew they had very little time to burn the oil before another storm arose, yet made every effort to engage the myriad stakeholders participating in the Incident Command System organization, including environmental and technical specialists. The environmental

organizations and agencies were asked to caucus and provide a consensus recommendation within a few hours. This was very uncomfortable for them, especially given the many factors outside human control and the fact that none of the options reasonably available were free of adverse impacts. Nonetheless the majority of those who grappled with the decision agreed that the burn was the best available option.

On 10 February, the FOSC, RP and Oregon State IC signed a memo documenting their decision to attempt a controlled burn aboard the stricken vessel that day. That UC Decision memo, in Appendix A, states their agreement that there was a strong possibility that the vessel would break apart in the impending storm predicted to arrive that night and that this would result in a release of almost all oil aboard. It also stated that lightering by sea or shore was not practical or safe due to sea conditions and vessel movement. The burn was attempted as "the last best chance to prevent a near total release of oil into the sea…."

The Burn Operation

Logistics Section

A tremendous effort on the part of the Logistics Section was necessary to get the required people, equipment, and supplies on board the ship in less than a day. The locally required materials included diesel fuel, gasoline, and sandbags, and on the second day a jellied petroleum fuel which the staff and contractors mixed and arranged to have airlifted onto the ship.

Rigging the Explosives and Fuel

The in-situ burn could not have been carried out without the expertise and extraordinary effort of the Navy Explosives Ordnance Disposal (EOD) Mobile Unit ELEVEN Detachment Northwest based at Naval Air Station Whidbey Island, Washington. (How the Coast Guard gained access to Navy resources for this response is discussed in a separate chapter of this report titled the Role of the Navy.) The EOD team got the call for help at 2130 on the evening of 9 February and worked through the night to pack their equipment and safety gear. On 10 February, they loaded incendiary devices (thermite grenades) aboard a Coast Guard C-130 cargo plane from CG Air Station Sacramento and departed at dawn. They arrived in Coos Bay by 1000 to be on scene to attempt to ignite the oil.

An earlier option considered was to use the ship's piping system to move the oil out of the intact fuel oil tanks, ignite it, and let the fire burn itself out. Unfortunately, the ship's piping system was rendered inoperable that morning by the major breach in the engine room. The EOD team discussed with the Coast Guard naval architect and other ICS staff alternative ways to ignite the oil remaining in the intact fuel tanks. They decided to attempt to penetrate the tanks by blasting holes through their tops and then igniting the oil. To execute this revised plan it was necessary to bring in high explosives to breach the steel plates.

The explosives were requested via EOD Mobile Unit ELEVEN. Due to the distance and logistics involved, the explosives were not expected to arrive until 1500. That was deemed too late to initiate a burn, due to the impending storm and nightfall. An alternative plan was devised

to rig the incendiary devices that the team had brought with them over the intact fuel tanks such that the grenades would burn for a sufficient time and at a sufficient intensity so as to penetrate the deck into the fuel oil. A number of thermite grenades were nested inside sandbag pits over the fuel tanks while other grenades were placed near fuel sources in the engine room and in the breached cargo holds. At about dusk on 10 February, the grenades were detonated by the EOD team. They worked from a Coast Guard HH-65 Dolphin helicopter which was hovering in the vicinity of the vessel. All of the charges detonated but the grenades failed to burn through the deck into the fuel oil. A small fire was detected in the engine room but did not persist. Plans were laid that evening for a second attempt in (what was thought to be) the unlikely event that the ship survived the approaching winter storm.

On 11 February, the winter storm forecast for the morning had stalled offshore. The explosives had arrived late the previous afternoon on a small Navy passenger plane from which the seats had been removed to accommodate the load of explosives. The Navy EOD team was reinserted onto the vessel and spent the day laying the new charges. Flex Linear Shaped Charges were placed over the fuel oil tanks to penetrate their tops and release oil to the cargo holds. This was done to achieve a greater surface area for ignition and to improve the air-fuel mixture. A commercial fire-fighting expert from Williams Fire-fighting Company in Houston Texas was hired by the Unified Command and provided invaluable advice on how to ignite the fuel. Twenty-five 55-gallon drums of jellied petroleum were placed throughout the ship in key locations and rigged to detonate and spill their contents as the penetrating charges cut 22 foot long holes into the fuel tanks. (The jellied petroleum mixture had been prepared that morning by Coast Guard and contract personnel and had been delivered via sling loads carried by commercial helicopters into the cargo holds.) The drums of jellied petroleum were placed where they would ignite the ship's fuel oil if the petroleum burned long enough and at sufficiently high temperatures. During the day, as the EOD team rigged the explosives, the salvage team noted the rapid deterioration of the ship. A vertical fracture in the shell plating at the forward end of the #6 cargo hold had grown to about 40 feet and reached the main deck. A catastrophic structural failure was imminent.

At 1745 on 11 February the explosives were again detonated remotely from the Coast Guard helicopter. This time fires were successfully ignited in the #2, #3, #5, & #6 cargo holds and in the engine room. About three hours later on 11 February, with the vessel and its oil fully engulfed in fire, the vessel broke in half forward of the bulkhead separating #5 and #6 cargo holds. It is very unlikely, and there is no evidence, that the explosions or fire contributed to the vessel breaking in half. The vessel burned through the night. By 0800 on 12 February, most of the fires had burned out with the exception of a fire on the stern section that burned for approximately 33 hours. Attempts were made over the next few days to reignite the unburned fuel but these attempts were largely unsuccessful. That evening, 12 February, the NEW CARISSA broke in half near the aft end of the #5 cargo hold, just forward of the bulkhead separating the #5 and #6 cargo holds.

In summary, the burn of the oil on the ship was one of the most notable aspects of the response to the NEW CARISSA. This was the first time this methodology had been used on such a scale in the continental United States, so there was little guidance on how to proceed. It was an act undertaken when circumstances offered few other realistic options to prevent additional spillage

of oil. In the end approximately 200,000 gals of fuel oil--half of the oil on board--were burned in the operation. None of that oil was spilled. Although the burn generated copious amounts of black smoke, the burn occurred during winds that carried nearly all of it offshore. Air monitoring was conducted (as discussed elsewhere in this report) and there were no adverse health effects from the smoke noted to the local population or the responders. Thirty-nine explosive charges, 600 gallons of jellied petroleum, and almost 400 pounds of explosive powder were used. Fuel oil tanks under adjacent cargo holds had radically different success rates in terms of oil burned even with identical amounts of charges and igniting fluid placed in those holds. Because this was a first-of-its-kind operation, it is important to share a few of the more important lessons learned in order to contribute to the success of future responses where this response tool may again be appropriate.

The basic concept of burning oil in a vessel is sound as a means of averting a spill but it is neither easily implemented nor a panacea for all grounded vessels. There are a host of factors that need to be taken into account prior to implementing in-situ burning. Some of the more valuable lessons learned from this operation are described below.

Public Health and Safety

Local health authorities need to be brought in to the decision making process when in-situ burning is being considered. In the case of the NEW CARISSA, the health risk to the local population from smoke, as determined by Federal and State health authorities, was extremely low. The dissemination of conflicting information by the State and local health agencies caused a certain amount of consternation and confusion in the local community. One local health authority who had not been involved in the decision making process acted independently (without the knowledge of the UC) to notify local schools to close early and advised parents to keep their children indoors.

Fuel Oil Ignition

It is exceedingly difficult to ignite and sustain the burning of cold bunker oil under the conditions experienced with NEW CARISSA. The oil needs to be subjected to sustained heat and flame in order to attain a high enough temperature to burn on its own. The method of spilling a thick layer of jellied petroleum on top of oil to ignite it is theoretically sound. In this case however, when the ship broke apart and took on a list, the jellied petroleum may have flowed off of the oil encased in the below deck fuel tanks and burned out in the corner of the hold without igniting the oil. One reasonable explanation for the success of the burn of the oil in the #1 fuel oil tank, while #2 fuel oil tank remained unburned, is that water entered the damaged #1 fuel oil tank and forced the oil up into the cargo hold producing a much greater surface area. In a similar case, it may be advisable to build a sandbag berm around the fuel oil to keep the ignition fuel in contact with the fuel oil or to otherwise expose as much of the oil surface to the fire as possible. If it is possible to move the oil out of the fuel oil tank into a cargo hold to provide a larger surface area and greater oxygen exchange it should be considered, although this method has obvious drawbacks if the burn proves to be unsuccessful for other reasons. In any event, consulting with an expert well versed in fire science and familiar with the characteristics of the specific oil is highly recommended.

Ventilation

Ventilation of a fire is crucial to combustion and therefore to the success of any in-situ burn. During the NEW CARISSA burn it was anticipated that the forecast 60 knot winds would provide adequate oxygen flow to the fire, but those winds did not materialize. The fuel oil tanks were at the bottom of the cargo holds, 80 feet beneath the cargo hold access. The fire may not have had enough oxygen to sustain an efficient burn. Future burn events should try to ensure sufficient oxygen is available, although cutting additional holes in the ships skin near the waterline is rarely a preferred option in any ship salvage/response evolution.

Chapter 3 Lightering

After NEW CARISSA broke in half on 11 February, both sections were stranded in the surf off of Coos Bay Oregon. The stern section was firmly planted in the surf and relatively little fuel oil was believed to remain in it after the burn. The bow section was afloat and moving with an estimated 130,000 gals of heavy fuel on board. Approximately 100,000 gals were in the #2 fuel oil tank located under the #3 cargo hold, while another 30,000 from the #1 fuel oil tank were estimated to be mixed with the water in the #2 cargo hold. The burn had eliminated most of the oil from #1 fuel oil tank but the oil in #2 fuel oil tank was relatively unscathed.

Modeling completed by NOAA indicated that oil held within the hull would solidify within six days at the temperature of seawater at great depths, which should prevent further release of oil. The UC considered its options and decided to tow the bow section out to sea and sink it approximately 240 miles offshore with the remaining oil on board as soon as possible. This approach was favored over a lightering attempt because the bow section remained mobile in the surf, moving from 20 ft to 400 ft each 24 hr period. Time was of the essence as the bow section had rotated 180 degrees and was drifting back between the stern section and beach, where it would be difficult if not impossible to maneuver it offshore. The UC was concerned that, given enough time, the bow section would work its way to a position inaccessible to a towing vessel, blocked by the bow section. Each day's inspection revealed further deterioration in the structural condition of the bow section. A series of winter storms continued to beat the two sections of the NEW CARISSA with surf conditions in the 15-30 foot range with the heavy seas causing sea water to splash into the cargo holds.

On 17 February, an attempt was made to hook up a tow line from the bow section of NEW CARISSA to SEA VICTORY. The attempt was unsuccessful as heavy seas prevented SEA VICTORY from getting close enough to the bow section. Smit Americas ordered a longer towline from Holland, with an ETA of 21 Feb. Meanwhile, the heavy seas pushed the bow of NEW CARISSA further in to the beach. Reports indicated that the bow section was continuing to deteriorate and the UC's primary concern was that a catastrophic structural failure and release of the remaining oil was inevitable if the bow section remained in the surf. The UC committed to removing the bow section as soon as possible but needed about four days to prepare the bow for the tow and to prepare the beach to receive the incoming towline. At low tide the bow section was so close to the beach that it was approachable by walking to it from shore. The UC decided to try to remove as much oil as possible off the bow section before the towing preparations were complete. The goal was to lessen the environmental impact in the event the bow broke up during the removal attempt and to remove as much weight as possible to increase the chances of getting the vessel safely out of the surf.

Three options were considered for the lightering operation. The first proposal was to lighter the vessel by pumping the oil into home heating oil tanks and then helicopter lifting those tanks out of the cargo holds, transporting to shore, emptying those tanks into larger storage devices, and then flying them back aboard to be refilled. The UC considered and rejected this proposal for two reasons. First, to successfully remove all of the oil would have required hundreds of helicopter flights and lifts out of the cargo holds which presented an unacceptable safety risk

both to the pilots and those working under the helicopters in the cargo holds. Second, it would have been slow and inefficient process given the limited capacity of these tanks and the viscosity of the oil. The second option considered was to use oil heating equipment and pump the oil to shore tanks. This operation would require a substantial amount of equipment to be placed on board, a supply of fresh water, and perhaps a week to complete the warming and removal of the oil. This proposal conflicted with the time line for the salvage operation but was selected as an alternate plan in case the ship removal effort was unsuccessful. Marine Pollution Control, an oil removal contractor, was hired to make preparations to execute this plan as a contingency. The third option was to use a viscous oil pumping system to move as much cold oil as possible to shore tanks.

The Coast Guard Pacific Strike Team had the equipment available and was tasked by the UC to conduct the lightering operation. At 1730 on 17 February, the Pacific Strike Team was contacted and they promptly deployed personnel and heavy equipment. They requested additional personnel assistance from the Gulf Strike Team and the Atlantic Strike Team and they deployed members to the scene as well. The UC issued a memo titled "Fuel Oil Lightering" on 18 February which sets out in detail why the Strike Force was used in this operation (see Appendix A).

The Pacific Strike Team (PST) members drove through the night, arriving at the staging area at 0900 on 18 February. During that day, heavy equipment was offloaded from Strike Team trucks and flown out to the ship. Plans and preparations were made to commence lightering operations on 19 February. A team of seven PST personnel and two Smit welders were airlifted to NEW CARISSA on 19 February and initiated an arduous and innovative effort to lighter the oil from the ship. Their activities between 19 and 22 February are described in Appendix B., Supplement to Selected Chapters. No further lightering operations were conducted on the bow section of the NEW CARISSA for the duration of this response.

Chapter 4 The Decision to Scuttle the Ship

After the successful in-situ burn and the complete fracture and separation of the bow section from the stern section, the Unified Command (UC) needed to reassess the situation onboard in order to determine how to proceed. However, it was felt hoisting personnel onto the stern section was too dangerous in light of the stern's obvious list to port, trim by the bow, large sea swell, pounding surf and high winds. The bow was more stable. On 15 February, a four person team including the Deputy RP and USCG PST and MSO Portland personnel were hoisted aboard the bow section by Coast Guard helicopter. Their objectives included 1) assessing the structure conditions, 2) assessing visible oil conditions, sampling oil, and determining the level or quantity of oil remaining (using oily water interface detector or water pasted sounding tape, and 3) assessing pumping options to remove any remaining oil.

This survey revealed that the #2 cargo tank had a minimum of 40 cm of floating emulsified heavy oil on top of water. The # 3 cargo hold was not flooded, and in the #4 cargo tank the torpedo tank top penetrations (approximately 3 foot by 8 foot) were clearly visible. Surprisingly, and somewhat to our dismay, there appeared to be heavy oil in #2 fuel oil tank just below the holes made by the explosive charges. This suggested that the #2 fuel oil tank was not tidal, and its oil had not floated up into the cargo hold to be burned. This survey and subsequent surveys done later by a MSO Portland marine inspector and naval architect revealed continued progressive damage to vertical stiffening members, especially in way of the transverse bulkhead between #2 and #3 cargo holds. This was, of course, the location where an estimated 100,000-130,000 gals of heavy oil remained, posing a threat of sudden release should this area of the ship fail structurally.

These facts were used to help weigh the comparative risks of disposal at sea with a long, arduous, and potentially very dangerous lightering evolution 700 feet from shore in a heavy surf zone. Given the progressing structural damage and prediction of continued storm impacts, the Unified Command (UC) was in agreement that the only feasible option to mitigate further release of oil was to refloat the bow section of NEW CARISSA and tow it to sea for disposal. The FOSC requested that the Coast Guard co-chair of the Regional Response Team (RRT), CAPT John Veentjer, bring the issue before that body. He did so and the RRT concurred with the proposed action, given the environmental conditions and the potential impact of alternative removal options. The Responsible Party (RP) requested that the bow be refloated and towed to sea for disposal. The Coast Guard approved of this action. The UC issued two decision memos describing the reasons and authority for this action, on 16 and 17 February (see Appendix A). The 17 February memo states that this decision "…is being undertaken to minimize and mitigate further discharge, or the threat of further discharge, of oil and other pollutants near the fragile near-shore and shore environment of North America."

The removal and sinking of the bow of the ship complied with all Federal statutes governing the action. Several authorities were examined prior to the decision to sink the vessel at sea, including the Intervention On the High Seas Act covered in COMDTINST 16451.5A, and Removal under the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300.415. The Coast Guard consulted with the Environmental Protection Agency (EPA) regarding compliance with the Ocean Dumping Act (49 CFR 229) and the Federal Water

Pollution Control Act (as amended). A summary of those deliberations is provided as enclosure (5) of the UC decision memo of 16 February. (See Appendix A). In close consultation with the EPA and Coast Guard headquarters officials, we determined that the situation, posing an emergency, fell under the authority of the FOSC as stated in 40 CFR 300.415. (See relevant excerpt in Appendix H). The UC also sought and received the concurrence of the natural resource trustees prior to the action.

Chapters 5 and 6 describe towing the bow section of NEW CARISSA to sea. The scuttling operation at sea is described in Chapter 7; additional details are in Appendix B.

(Note: The term “scuttling” has traditionally been used to mean an action taken by a vessel’s crew or owner, while the term “sinking” has implied an action taken by an external party, such as a hostile force. In this incident, the action was formally requested by the RP, approved by the FOSC, begun by the RP’s contractors and completed with the assistance of the U.S. Navy.)

Chapter 5 First Tow of Bow Section (from Coos Bay)

Seaworthiness Considerations

On 19 February 1999 a Coast Guard marine inspector/naval architect from MSO Portland, arrived in Coos Bay to act as a Technical Advisor to the Unified Command on structural and stability issues. The inspector reviewed the salvage plans submitted by Smit Americas, which are provided as enclosures (1) and (2) in Appendix H. He discussed structural and stability issues with both the naval architect for Smit Americas and the naval architect representing Navy SUPSALV. He also reviewed the stability analysis conducted by the U. S. Coast Guard's Marine Safety Center (MSC) Salvage Engineering Response Team (SERT). This analysis is provided as enclosure (3) in Appendix H.

On 22 and 23 February, the Coast Guard inspector/naval architect was hoisted aboard the bow section via helicopter to conduct a detailed survey of the structure and collect samples of the oil at the bottom of the #2 and #3 cargo holds. He was accompanied by additional MSO personnel Photos of the damaged areas were taken during the 22 February survey and a video tape was made during the 23 February survey. A summary of the damage that was observed is provided as enclosure (4) in Appendix H. While the extent of damage to the underwater structure could not be assessed, based upon observations of those portions of the structure that was visible, it appeared the bow section was sound enough to be safely towed off the beach and out to sea to be scuttled.

Based upon updated information on the condition of the tanks and his first-hand observations, the marine inspector contacted the MSC SERT and requested additional stability calculations. These calculations are provided as enclosure (5) in Appendix H.

At this time, the #4 cargo hold contained approximately 3.3 meters of water. In order to reduce the ground reaction and improve the stability of the bow section (by reducing the free surface effect), the marine inspector strongly recommended that the #4 cargo hold be pumped dry and then kept dry while under tow. However, the lead representative for Smit Americas stated he wanted to keep this cargo hold "ballasted down" until immediately before the bow section was to be towed off the beach. This would keep the bow section from washing further ashore, plus it would provide a good pivot point at the aft end to help rotate the bow out to sea. The marine inspector agreed that this was the best course of action, as long as the #4 cargo hold was empty once the bow section was pulled off the beach and under tow.

On 22 and 23 February, an updated salvage plan was verbally requested from Smit Americas, since a salvage plan which contained a detailed summary of the vessel's condition had not been provided since 14 February and many conditions had changed since then. By 24 February, it did not appear that Smit had taken any action in updating their salvage plan, so a memo (Enclosure (6) in Appendix H) was issued to the RP requiring that an updated salvage plan be submitted by the RP before towing operations would be permitted.

An updated salvage plan (Enclosure (7) Appendix H) was received from Smit Americas on 25 February; however, the calculations to support this salvage plan were not received until 26 February. This salvage plan was reviewed and then forwarded to the MSC, and additional stability calculations were performed by the MSC SERT based upon this salvage plan (see enclosure (8)). These calculations showed that the integrity of the #4 cargo hold was critical for the safety of the towing operation. The USCG concurred with Smit's criteria to abort the tow if the #4 cargo hold were to flood.

A summary of all the stability cases run by the MSC SERT is provided as enclosure (9) in Appendix H. Of all the cases analyzed, it appeared that Case #7 was most the likely loading condition while the bow section was under tow. This case showed the bow section to have very adequate stability characteristics: GMt = 10.78 meters, range of positive righting arms = 56.2 degrees.

Towing Operations

On the morning of 26 February, a towline was successfully connected from the bow section of the NEW CARISSA to the tug SEA VICTORY. This was done in accordance with a rigging plan submitted by Smit Americas, which is provided as Enclosure (10) in Appendix H. The towline consisted of anchor chain coming off the bow the NEW CARISSA, shackled to a 3 inch wire pennant that was 50 feet in length, shackled to 3,200 feet of 10 inch Dyneema synthetic rope (flown in from Holland by the RP), shackled to a wire rope coming off SEA VICTORY.

Once the towline was hooked up, salvage workers aboard the bow section commenced de-ballasting operations to reduce the ground reaction. These de-ballasting operations included pumping the water out of the #4 cargo hold, and applying air pressure to force the water out of ruptured double bottom tanks.

For the next three days SEA VICTORY took a heavy strain on the towline at each high tide and shifted around to pull from different directions. During each tidal cycle the salvage vessel succeeded in slowly pulling the bow section further off the beach. Late in the evening of 1 March, the bow section was finally pulled free and taken under tow towards the designated scuttling site 250 miles offshore.

The bow section was monitored by the salvage workers onboard the vessel and by observers conducting over-flights. As predicted, the stability characteristics were very good. Also, no problems or significant changes were observed with the vessel's structure. The #4 cargo hold did appear to be slowly filling with water, but the leaks were very minor and the salvage workers were easily able to keep this cargo hold pumped down using portable de-watering pumps.

During the afternoon of 2 March, a powerful storm hit the Pacific Northwest, with 60 knot winds and 30 foot waves. About noon, the storm sheared off the tug’s wind gauge after registering 65 knots (as reported by Captain Bill Lowery), which is a hurricane by the Beaufort wind scale. About 19 hours after leaving the beach and six hours in the storm, the towline parted. It parted in the 2¼ " wire rope coming off the tug SEA VICTORY (the synthetic Dyneema rope did not part). SEA VICTORY was unable to re-establish the tow in the heavy seas and winds. By the

morning of 3 March the bow section of the NEW CARISSA had drifted back to shore, this time grounding on the sandy beach just south of Waldport, Oregon.

Note: The Coast Guard expected a 2½ " wire rope to be used in the tow, consistent with discussions held before the tow; however, after the rope was retrieved on the beach at Waldport, the Coast Guard discovered that it was only 2¼". The nominal breaking strength for the wire rope would have been approximately 100,000 pounds greater with a 2½" inch wire rope, but the strength also depends upon the type of wire rope used. The second grounding is under investigation by the Coast Guard and the result of that investigation is pending.

The following documents, which provide details of the towing plans and analyses, may be found in Appendix H.

(1) Salvage Plan, "Refloating: Forward Section", dated February 14, 1999, submitted by Smit Americas, Inc.
(2) Method Statement for Salvage Plan, " Refloating: Forward Section", Rev. 1, dated February 16, 1999, submitted by Smit Americas, Inc.
(3) Stability Analysis by U. S. Coast Guard Marine Safety Center, with cover letter dated February 17, 1999
(4) Damage Summary for bow section of M/V NEW CARISSA
(5) Stability Analysis by U. S. Coast Guard Marine Safety Center, with cover letter dated February 24, 1999
(6) Memo from USCG FOSC to Mr. Bill Milwee, Subj: "M/V NEW CARISSA; updated salvage plan," dated February 24, 1999
(7) Revised Salvage Plan, "Refloating: Forward Section", Rev. 2, dated February 24, 1999, submitted by Smit Americas, Inc.
(8) Stability Analysis by U. S. Coast Guard Marine Safety Center, with cover letter dated February 25, 1999
(9) Summary of "Stability for Various Loading Conditions" for NEW CARISSA (bow section)
(10) "Rigging Plan for Towing of Fore Section," dated February 19, 1999, submitted by Smit Americas, Inc.

Chapter 6 Second Tow of Bow Section (from Waldport)

Seaworthiness Considerations

On the morning of 3 March the bow section of the NEW CARISSA grounded on the sandy beach just south of Waldport, Oregon, after the towline connecting it to the SEA VICTORY parted on the afternoon of 2 March. Shortly after noontime on 3 March, a Coast Guard marine inspector/naval architect was hoisted aboard the bow section to conduct a detailed survey of the structure and find out if any additional damage had occurred since the vessel had departed the Coos Bay area. Overall, the structure had held up extremely well, and still appeared to be seaworthy.

The only new damage that could be identified was that the #3 fuel oil double bottom tank (a centerline tank, directly below the #4 cargo hold) had sustained a significant breach. Otherwise, the damaged areas did not appear to have gotten significantly worse, which was remarkable considering what the vessel had just been through. For more details on the condition of the structure, see the damage survey provided as enclosure (1) in Appendix H.

Based upon these first-hand observations of those portions of the structure that were visible, it appeared that the bow section was still sound enough to be safely towed off the beach and out to sea to be scuttled. Furthermore, the stability characteristics appeared to be virtually the same as when the bow section had been at the Coos Bay grounding site, and no additional stability calculations were deemed necessary. The breach in the #3 fuel oil tank would probably increase the ground reaction slightly, but any additional water in this double bottom tank would tend to improve stability. Therefore, this was not a significant concern.

Towing Operations

On the morning of 6 March, a towline was successfully connected from the bow section of the NEW CARISSA to the tug SEA VICTORY (7,200 hp, with a 107 ton bollard pull). The towline consisted of anchor chain coming off the bow of NEW CARISSA, shackled to a 3 inch wire pennant that was 50 feet in length, shackled to 2,400 feet of 14 inch poly towline (provided by Navy SUPSALV), shackled to 2-1/2" wire rope coming off the tug SEA VICTORY.

Once the towline was hooked up, salvage workers aboard the bow section commenced the same sequence of de-ballasting operations they had performed at the Coos Bay grounding site. These de-ballasting operations included pumping the water out of the #4 cargo hold, and applying air pressure to force the water out of ruptured double bottom tanks.

For the next day and a half the SEA VICTORY took a heavy strain on the towline during each high tide and shifted around to pull from different directions. Each tidal cycle she succeeded in slowly pulling the bow section further and further off the beach. During the early morning hours of 8 March the bow section was finally pulled free and taken under tow towards the designated scuttling site 250 miles offshore.

The bow section was initially monitored by the salvage workers onboard and by personnel conducting over-flights. During the first day under tow, the stability characteristics appeared to be very good. Also, no problems or significant changes were observed with the vessel's structure.

During that first day under tow, the de-watering pumps were removed from the #4 cargo hold, and the air compressors (used to pressurize the double bottom tanks that had been breached) were removed. The salvage workers operating this machinery were also evacuated from the vessel. For the next several days while transiting to the scuttle site, the bow section was monitored by personnel on the escort vessels (SEA VICTORY, the Sause Bros. tug NATOMA, and the oil skimmer OREGON, part of the Marine Spill Response Corporation), and also by personnel conducting daily over-flights. During this time period the vessel was observed to develop a 10 to 15 degree starboard list, and also to develop some trim by the stern. This change to the stability characteristics was believed to be caused by water slowly leaking into the #4 cargo hold. One of the Smit salvage workers aboard the vessel had attempted to weld up two fractures that were leaking water into the bottom of the #4 cargo hold, but the welds were not completely successful in stopping the water. Based upon the observed heel and trim, the bow section appeared to have taken on a considerable amount of water in the #4 cargo hold by the time it reached the scuttling site. However, it was only taking 5 to 10 degree rolls, and did not appear to be in danger of capsizing or sinking.

See Appendix H for the following document.

(1) Damage Survey of the Bow Section of the M/V NEW CARISSA, dated 3 March 1999

Chapter 7 Sinking the Bow Section

During the early morning hours of 8 March, the bow section of NEW CARISSA was finally pulled free of the beach near Waldport, OR and taken under tow towards the designated scuttling site 250 miles offshore. The Responsible Party (RP) had contracted with Smit Americas, Inc. to carry out the tow and scuttling. Given how fast the bow section had drifted ashore again after the towline broke on 2 March, it was clear that the scuttling process had to be done expeditiously. However, there were still approximately 130,000 gallons of oil aboard the bow section, so the scuttling process could not be too destructive to the hull structure or much of that oil was likely to be released. The intention was to keep the bow section mostly intact during scuttling, and to sink it aft-end first if possible, in order to trap the oil inside the hull and entomb it at the bottom of the ocean.

Selection of a Plan

Alternative ways to scuttle the vessel were considered and found infeasible. These alternatives (and additional details about other aspects of the sinking operation) are described in Appendix B. Given the condition of the bow section, the most feasible way to ensure it would sink quickly, but with minimal release of oil, was to breach key locations in the hull plating, tank tops, and main transverse bulkheads with carefully positioned explosive charges. This would initiate flooding in a controlled manner, without creating major breaches in the hull. The U. S. Navy's Explosive Ordinance Disposal (EOD) team, Mobile Unit ELEVEN Northwest Detachment was contacted via the Coast Guard's Thirteenth District (D13) Operations Division. They agreed to place the explosives.

Although explosives were planned as the primary method to initiate flooding, naval gunfire was considered important to ensure the success of the scuttling process. A Spruance-class destroyer, USS DAVID R. RAY (DD 971), was assigned to transport the EOD team to the scuttling site and provide gunfire support with its 5" guns. The Navy indicated they could also provide a torpedo to scuttle the vessel if that was deemed necessary. A torpedo would be used as the last resort, since there was a risk that it would do major structural damage to the vessel and release the majority of the remaining oil.

Preparation for the Sinking

On the morning of 10 March, the Navy EOD Mobile Unit ELEVEN Detachment Northwest was transported from their base at Whidbey Island, WA, to San Francisco, CA, to board USS DAVID R. RAY. They brought with them 380 lbs of C4 plastic explosives. The destroyer and the tug SEA VICTORY, towing the bow of NEW CARISSA, converged at the selected site for scuttling on the morning of 11 March. Despite the list and trim that was observed, the bow appeared to be fairly stable and was only taking about 5 to 10 degree rolls in the moderate sea conditions (5' swells). The EOD team leader and the Coast Guard Marine Inspector decided it was safe for the EOD team to go aboard the bow but that no one should go inside the hull structure. The explosive charges would be lowered into place from the main deck using ropes.

The Bow is Sunk

After all the charges had been positioned and connected to the detonators, all the air fittings to the double bottom tanks were opened to facilitate the sinking. Then all personnel were evacuated from the vessel.

The towline to NEW CARISSA was released and the explosives were remotely detonated from DAVID R. RAY at 1408. The flooding caused by the explosions caused the vessel to heel more to starboard (to an angle of about 20 to 25 degrees) and settle more by the stern. The explosive charges that had been lowered onto the tanktops, which ranged from 20 to 60 lbs in size, had probably succeeded in breaching most of these tanktops. These charges were placed over double bottom tanks that were known to be tidal. However, the breaches in the shell plating (holes and/or fractures) that caused these double bottom tanks to be tidal were probably quite small, so the rate of flooding was relatively slow.

At 1419, DAVID R. RAY opened fire with its aft 5" gun from a range of about 3,000 yds. NEW CARISSA was heeled about 20 to 25 degrees to starboard with its aft-end nearly submerged. NEW CARISSA continued to heel to starboard and settle by the stern, after being hit by approximately 69 rounds from the 5" gun. At this time, the Commanding Officer (CO) of USS DAVIS R. Ray began to assess the need for additional action to expedite sinking the bow. This assessment was based on several factors including the following: 1) the mission requirement to complete the sinking; 2) impending adverse weather which had already begun to build high seas and strong winds, 3) the approaching sunset, and 4) concern with potential difficulties and life safety risks associated with recapturing the bow section if it had not sunk by nightfall. With these factors in mind, the CO decided to employ the Los Angeles-class nuclear submarine, USS BREMERTON (SSN 698), which was on scene to assist as needed. The CO gave the order for USS BREMERTON to fire a torpedo at the bow of NEW CARISSA. While the submarine got into position, the bow section continued to sink. At approximately 1543 the torpedo was fired, and the bow section sank at 1552 in 1811 fathoms of water.

Minutes later, observers on a Navy P-3 aircraft flew over the area and reported seeing an oil slick that was about one hundred yards in diameter. At 1600, the CO of the destroyer ordered the OREGON RESPONDER, the oil spill response vessel then about 8 NM away from the site, to skim the slick. However, the crew of that vessel could not find any oil when they arrived at this location and by 1800 they completed their survey and departed. The bow section of the NEW CARISSA sank at 43-31.5' N, 130-25.5' W, in 10,866 feet of water, 282 NM west of Waldport, OR. Subsequent overflights have not revealed any oil at the site. On 12 March the UC issued a decision memo that summarized the fate of the oil originally onboard NEW CARISSA and a decision memo that summarized the final disposal operations (see Appendix H).

The lessons learned related to the Navy's assistance with sinking the bow section follow.

1. The Navy's contribution to the sinking operation of the bow section of NEW CARISSA was unique and invaluable. The Navy responded rapidly to Coast Guard requests for assistance with appropriate assets, and should be considered a valuable partner whenever a pollution response requires assistance with salvage, in-situ burning or scuttling a ship.

2. There is an Interagency Agreement between the Navy and the Coast Guard for Cooperation in Oil Spill Clean-Up Operations and Salvage Operations. It specifies conditions and procedures under which the services may request and will provide equipment and services to each other. It was signed in 1980. We recommend that a joint services group examine it to determine whether it should be revised to: a) provide for expedited deployment of assets, b) address operational command and control during responses, c) cite current statutes and regulations and d) address the advancements in response and salvage technology that have emerged in the last two decades.

Chapter 8 Disposition of the Stern

Removal of Remaining Oil

After the bow section of NEW CARISSA was towed away from Coos Bay, the stern section remained there in shallow waters. Based upon a preliminary survey conducted by an inspection team, it was believed that very little oil was left on the stern. The FOSC requested that the Responsible Party (RP) propose a methodology to verify the amount of oil still onboard in subsurface spaces, and a means to remove it. Meanwhile, the RP hired contractors to remove all hazardous materials, solvents, paint cans, batteries and oil from the stern and to secure it for the safety of the public.

When work on the engine room began, it became obvious that there was significantly more oil than expected remaining on the stern. Through the use of skimming and absorbent materials about 10,000 gallons of oil was removed. At that point the surface of the water was clear of recoverable oil although some oil was clinging to the bulkheads and equipment in some areas. There had been no proposal yet from the RP to determine what oils remained in areas such as the # 5 fuel oil tank, the #1 diesel oil tank, the lubricating oil sump tank, the bilge, the sludge tank, the larger tanks that were subsurface. As a result, the FOSC issued an administrative order on 13 April that required the RP to evaluate and propose some means to identify and remove any remaining oil. (See Appendix H.) This was done pursuant to the Federal Water Pollution Control Act (as amended) which authorizes FOSCs to issue orders to RPs to ensure effective and immediate removal of a discharge or the mitigation or prevention of substantial threat of a discharge of oil or hazardous substance.

The RP developed a proposal to assess and remove remaining oil on the stern, but it was submitted to the FOSC with a strong statement of objection to the operation on the grounds that the assessment and removal would be unsafe for the workers involved. The FOSC chose to suspend the administrative order on 15 April but proceeded to hire contractors Global Diving and Salvage, as well as Fred Devine Diving and Salvage Co., Inc. to conduct a thorough assessment of stern safety and to implement a successful oil exploration and removal plan.

All of the subsurface tanks were opened, and the oil either pumped out of them or forced out into the engine room by air pressure, where the oil was recovered by skimming operations. Additionally, all void spaces were opened as well as all of the main propulsion engine, and the three ship’s service generators. An additional 4,000 gallons of oil was removed from the stern using this methodology. We are confident that all potential pollution sources within the stern were mitigated, based upon available information about the structural spaces in the stern, the amount of oil recovered, and the methods used to access and clean the spaces.

As a final step in cleaning the stern, a cleaning agent was used to dissolve and extract any oil clinging to the bulkheads and machinery. This step was taken after consulting with the Regional Response Team about the use of the agent. The Coast Guard also opened the ship’s food lockers and removed putrefied foodstuffs to ensure that workers would not be at risk of exposure to hydrogen sulfide and methane, which are byproducts of decomposition. This action was taken

after consulting with the Centers for Disease Prevention and Control on how best to minimize risks to health.

As of 20 May, the Coast Guard and its contractors safely completed the operation and the FOSC determined that the substantial threat of a discharge was mitigated and oil removal operations aboard the stern section were completed. The FOSC notified the RP of this fact in writing with a copy to the State of Oregon.

Copies of 19 letters related to final oil removal operations on the stern section and the removal of the wreck of the stern are located in Appendix H.

Epilogue: Wreck Removal

While the stern wreck removal is not a part of the pollution response that is the subject of this FOSC report, there is sufficient interest in the fate of the stern section to warrant a few words about its disposition. The owner of the NEW CARISSA and the owner's representatives have consistently maintained that they are committed to removing the wreck of the stern from Oregon's beach in accordance with the request and demand of Oregon Governor Dr. John Kitzhaber. They have signed a contract for this project, which will be a joint venture between Donjon Marine Co. of Hillside, New Jersey and Fred Devine Diving and Salvage Co., Inc. of Portland, Oregon.

The basic method will be cut-and-pick with disposal of scrap ashore. Ocean dumping of some portion of the wreck may be considered, but this option would be subject to the approval of the Environmental Protection Agency and other regulatory agencies. Donjon will deploy their tug ATLANTIC SALVOR with the crane barge COLUMBIA and the crew boat MATHEW SCOTT from New York. They will use a 200-ft self-elevating, jack-up barge from the Gulf of Mexico. The salvage vessel SALVAGE CHIEF will also assist. The project will require several months of work.

Chapter 9 Oil Spill Cleanup and Damage Assessment

Planning and the Response

During the first day of the incident, the Unified Command began developing an initial incident action plan for the next day's activities. Initial goals were safety of life, refloating the vessel, and protecting the environment. Initial discussions also began that evening on pre-staging equipment in the event of a release of oil, and to also begin looking at options to somehow pump the oil off the vessel if the need arose. Staging areas were mapped and secured so that as equipment began to roll in the first evening and next morning, we were able to control access and record what was on scene. A security group was activated immediately to secure the beach, staging areas, and command post. During the first few days, although there was no oil spilled, the UC proceeded with beach assessment work and to prepare plans and to mobilize resources in case a spill occurred.

An initial shoreline assessment was completed before nightfall on day one. Preliminary indications, which were later confirmed, were that the vessel's grounding location on the North Spit area was extremely difficult to access. The nearest paved road was approximately 2 miles away from the closest point of approach to the beach. The remaining dirt/sand road was only traversable by four-wheel drive vehicles, with the road being a single lane road. The OSP/County Sheriff at the ranger entrance to Horsefall beach access road had already established preliminary roadblocks.

On the second day, additional soundings were taken of the tanks on the vessel, and no water was detected in any tanks. Planning proceeded, with an emphasis on how to offload the oil if it became necessary. The Bureau of Land Management and the U.S. Forest Service, agencies that manage the land on the spit, developed estimates of costs to enhance the road to sustain vehicular traffic. The availability of dracones to store oil temporarily was assessed, as well as tanker trucks to transport oil. The RP contracted Global Diving and Salvage in Seattle for beach cleanup, and they were on standby to come down, as was FOSS. The Geographic Response Plans were studied and equipment was staged on trucks to deploy to sensitive sites if oil were released.

By the time the first oil was released on 8 February, we were reasonably well prepared for it, so far as environmental protection measures were concerned. This was the result of several factors including 1) sound planning (the Northwest Area Contingency Plan and Geographic Area Plans as well as the intensive work done on scene by participants in the response), 2) lessons learned from the CAPE MOHICAN Incident Specific Preparedness Review, 3) a massive influx of trained personnel and equipment, including that of the Pacific Strike Team and contractors (FOSS, First Strike, Global Diving and Salvage and others), and finally, 4) some good luck--the four day interval between the grounding and the spill that gave us time to refine plans and stage resources. For example, the process for removal and transportation and storage of debris was planned and approved and equipment obtained before the first oil removal actions were needed. The geographic scope of each division's work was established early and maintained, thus reducing confusion and making it easier to compartmentalize assignments. As a result of all of

these factors, the most sensitive environmental sites were boomed by the time the first oil was released on 8 February, and cleanup crews were on scene and equipped.

This response was complicated by the fact that the vessel grounded twice, so there were two separate beach and estuary oil spill responses necessary. The heaviest concentration of oil was within a quarter mile of each grounding site (Coos Bay and Waldport, OR). The cleanup was largely a manual labor effort, the majority of which was using shovels to "skim" oil and tarballs from the sand beaches and put the material into bags. About 120 clean-up workers were employed. Sorbant pads were used to clean rocks and wood on the beaches. An effective yet passive method to clean the beaches was to hang strings of pom poms just below the high tide line. At one point 10 miles of pom poms were in place.

On 15 March, the UC issued a decision memo titled Procedures for Completion of Shoreline Treatment Operation (see Appendix A). It established the process and criteria to accept and terminate active shoreline treatment operations in segments impacted by releases of oil from NEW CARISSA. The decision to stop active cleanup was a determination that further shoreline treatment would not yield a net environmental benefit. The decision memo provided for an Inspection Team to represent the UC to determine whether specific shoreline segments satisfied the cleanup criteria.

On 29 March, the UC issued two additional decision memos (see Appendix A). One of the memos documented action taken by the UC in response to a proposal dated 25 March from Federal and State of Oregon wildlife agencies to continue monitoring "non-plover" beaches. The other memo documents action taken by the UC in response to a proposal to continue monitoring and cleanup of tarballs and oiled debris that posed a threat to snowy plovers.

Natural Resource Damage Assessment

A Natural Resource Damage Assessment (NRDA) is underway, conducted by a team of natural resource trustees. The NRDA team worked within the Incident Command Structure and communicated with the Unified Command through the Scientific Support Coordinator who was in charge of the Environmental Unit. The Federal Lead Administrative Trustee for the oil spill was the Bureau of Land Management. Other trustees participating in the NRDA are the National Oceanic and Atmospheric Administration, the U.S. Fish and Wildlife Service, the Bureau of Indian Affairs, the U.S. Forest Service, the Confederated Tribes of Siletz Indians, the Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians, and the State of Oregon (Department of Environmental Quality and Department of Fish and Wildlife). The NRDA assessment has not been completed but should be released in September of 1999. All comments in this section are therefore preliminary and furthermore do not represent the conclusions of the NRDA trustees.

The extent of impacts to aquatic life from this incident is currently under assessment. Acute impacts to aquatic organisms appear to be limited to the immediate vicinity of the groundings, although further work is underway to determine the likelihood of acute impacts to other water column and benthic resources further from the groundings. Although oil products were detected in organisms collected a great distance away from the grounding, it has not been determined

whether the levels were high enough to result in significant effects. There were reports of commercial oyster mortality coincident with the spill, but the wide variances in levels of hydrocarbons detected in oysters and the possibility of other non-spill related factors raise questions about the causes of the mortality. The hydrocarbon levels did not exceed public health standards for human consumption.

There were numerous marine birds and shorebirds oiled during the incident. The overall impacts from oiling and the possible ingestion of contaminated food are still being assessed. Emergency restoration activities for the snowy plover population have been funded by the RP and are underway.. One snowy plover that had been oiled but cleaned and released was later found dead on its nest in the sand dunes. These birds are listed under the Endangered Species Act.

Impacts to recreational and cultural resources are also being assessed. The incident resulted in closures of several areas to the public and potentially affected tribal cultural resources.

Chapter 10 Public Outreach

In a world where we have almost instantaneous, 24-hour a day, live media coverage of the news, a Joint Information Center (JIC) established on day one was critical for the success (real or perceived) of the operation. Knowing this, a JIC was established immediately at Air Station-Group North Bend, near the site of the incident, by their public information officer (PIO). This was a crucial step in the JIC becoming the first and best source of information for the media, community and public at large. That individual ensured that everyone had a place to work and that accommodations were provided for the media. The Public Information Assist Team (PIAT) and the District 13 Public Affairs Officer soon arrived at the scene to work with the local PIO, and provided extensive knowledge about operation of a JIC and ICS. Their joint work was invaluable.

There was intense media interest in the incident through the first 45 days of the response. A web site was established to provide accurate and timely information to the public, other agencies and the media. It was a huge success, but quickly its capacity was exceeded. The National Oceanic and Atmospheric Administration issued a contract for a much more sophisticated web site with enormous capacity and that site was used throughout the spill and until August of 1999. It was used not only for press releases, but also for UC decision memos, pollution reports, technical reports, maps and photos. We recommend the use of the world wide web to facilitate the transmittal of information during a major spill response. For the information of those reading this report prior to August, the web site is http://161.55.32.17:591/carissa/home.htm.

The RP hired a public relations firm to work in the JIC and those professional individuals were an asset to the operations. Although there was some concern that the RP might choose to control the flow or content of information to the media, that did not occur. The fact that the supervisor for the JIC changed with time and was sometimes a Coast Guard person and sometimes a State of Oregon person and at other times was an employee of the RP may have contributed to the perception and the fact that all parties' interests were fairly and objectively represented.

A comprehensive discussion of issues related to operation of the JIC is provided in Appendix B.

Chapter 11 The Incident Command System

Establishing the ICS Organization

When the incident was reported to MSO Portland, an incident management team was quickly formed using the unit's recently developed Incident Command System (ICS) Level 2 Watch, Quarter, and Station Bill. Incident objectives were established during the first few hours of 4 February, and were incorporated into a Unified Command Incident Action Plan with the first planned operational period spanning from 0800 5 February to 0800 6 February. A 24 hour operational period was implemented.

In the next few days, as more agencies, contractors and stakeholders arrived in Coos Bay, the ICS organization swelled. There was substantial participation by agencies of the State of Oregon as well as many Federal agencies and two tribal groups. (See Participants in Volume I.) The ICS organization was structured and functioned much as described in the Oil Spill Field Operations Guide (FOG) (ICS-OS-420-1) although some variations were implemented, as described below. All but one of these variations were successful, and that pertained to salvage. See the Chapter 12, ICS and Salvage Management.

Response Management

On the first day of the grounding, the acting FOSC was informed by NEW CARISSA's agent that the "Qualified Individual" (QI) for the response was Mr. Bill Milwee. Mr. Milwee is a salvage expert with Gallagher Marine Systems, Inc., a pollution response company working in turn for The Britannia Club. Mr. Milwee joined the Unified Command as representative of the Responsible Party (RP). As the days passed, there developed growing significant frustration on the part of the Coast Guard and others in the response organization about inadequate communication from the salvage group. In addition, Mr. Milwee seemed to focus on salvage to the exclusion of the broader pollution prevention aspects of the response. This situation caused a lot of confusion and frustration, which culminated in a meeting between the FOSC and the President of Gallagher Marine Systems, Inc. At that meeting the FOSC learned that the president of the company, Mr. John J. "Jack" Gallagher, had assumed the authority of QI when he arrived on the scene of the incident. He acknowledged that this transfer of authority was not communicated to the Coast Guard and explained that he had retained Mr. Milwee as the representative of the RP on the UC because he had become the visible spokesperson for the RP to the media and the community and the response organization. Mr.Gallagher had augmented Mr. Milwee's expertise on the response team with that of another contractor, Mr. Gary Reiter, who was in effect a deputy RP for response, while Mr. Milwee was in effect a deputy RP for salvage. From that point, the FOSC knew that Mr. Milwee was speaking for the RP and was allowed to retain his visibility as the RP on the authority of Mr. Gallagher who was the QI. The lesson learned is confirmation that it is essential to clarify roles and responsibilities within the ICS and that it is highly desirable for the QI and the person representing the RP on the UC to be one in the same.

Tracking Information in the ICS

In the first hour of the response, an effective system of information tracking was implemented by those staffing MSO Portland's Crisis Action Center (CAC). This system is described in Appendix B.

Variations on the FOG Organization

The FOG identifies a Technical Specialist position for Resources at Risk within the Situation Unit, which is a part of the Planning Section. The Northwest Region Area Contingency Plan (ACP) provides for an Environmental Unit (EU) within the Planning Section, the functions of which encompass those of a Resources at Risk position plus several other related duties. One of its functions is to establish Shoreline cleanup Assessment Teams (SCAT). An EU was formed during this incident and functioned very well.

The FOG also identifies a Field Observer position within the Situation Unit. However, the ACP provides the flexibility to form technical specialists into separate units as necessary. In this incident we chose to form a Field Observer Unit (FOU) within the Planning Section, which served as the first occasion to thoroughly test the value of such a unit. The FOU was composed of Coast Guard Marine Safety Office (MSO) response petty officers, supervised by the Chief Marine Science Technician (MST). The FOU used "all terrain vehicles," other four wheel drive vehicles, digital cameras, hand held GPS and radios to transmit timely, accurate intelligence reports from the field to the Situation Unit. The Situation Unit was able to pass reports to the Operations Section Chief (OPS) throughout the operational period, making methodical, deliberate adjustments to operations on a real-time basis.

Using MSO response personnel as field observers worked extremely well, and is consistent with unit level and formal training provided to those assigned to an MSO Port Operations Department, especially the MST rating. The trained Coast Guard response personnel in the FOU delivered timely, accurate, and reliable information to the situation unit, which was invaluable given the complexity and magnitude of the incident. After a start-up period of about two days, during which crews tended to report to Operations as they do during routine MSO responses, the FOU became fully functional and worked very effectively. The OPS initially sought field information from familiar operational sources, including division/group supervisors, but quickly began using information from the SCAT and the FOU, as relayed through the Situation Unit.

The one departure from the FOG that was not successful was the location within the organization to which the salvage group was assigned. The salvage group was allowed to work outside of the Operations Section and to report directly to the UC. This decision and the serious problems it caused are described in the Chapter ICS and Salvage Management.

MER-Key Business Driver Survey

A very large number of the individuals (approximately 450) were provided with a survey designed to learn about many aspects of the response and the perceptions of participants and stakeholders about it. The survey includes questions about diverse issues including communications, stakeholder support, human health and safety. The results of the survey are

being analyzed by the Marine Safety School at the Coast Guard's Reserve Training Center in Yorktown, VA.

Chapter 12 ICS and Salvage Management

Salvage is often an integral part of a pollution response. This incident demonstrated that the organizational location and reporting chain for the individual responsible for coordinating and directing salvage activities related to an incident is of paramount importance. The Oil Spill Field Operations Guide (ICS-OS-420-1) indicates that the Salvage Group Supervisor should be under the direction of the Emergency Response Branch Director, who in turn reports to the Operations Section Chief. In the first days of the NEW CARISSA response, the Planning Section Chief (PSC) built an organizational structure, based on assets ordered in, to properly staff the incident for the first few planned operational periods, the first beginning 0800 5 February. A representative from the Navy Supervisor of Salvage (SUPSALV) had been dispatched to the incident, and was assigned by the PSC to work under the Operations Section Chief as the Salvage Group Supervisor. He was the first salvage expert on-scene other than the professional salvage expert selected by the RP and initially occupied a position consistent with the FOG.

However, after a day or so on scene, the SUPSALV representative informed the PSC that a more traditional role for SUPSALV was as direct advisor to the FOSC regarding the RP salvage expert's proposed actions, rather than being in the operational chain. At the same time, the RP expressed a strong desire to have the lead Smit representative be assigned as the Salvage Group Supervisor. Yielding to these requests, the PSC agreed that the SUPSALV representative would function as a technical specialist under the Planning Section and the RP's contractor was assigned as the Salvage Group Supervisor. However, that group was not placed within the Operations Section as provided in the FOG, but allowed to be "outside the box"-- directly advising the Unified Command (UC).

In practice, the Salvage Group Supervisor reported only to the RP, which caused a serious breakdown in operational control and communications within the ICS organization. Throughout the incident, there was inadequate communication from the Salvage Group Supervisor and the RP to the UC and the rest of the ICS organization regarding daily salvage operations and planning being carried out by the salvage team members, both at the command post and onboard the vessel. Many salvage plans and decisions were made external to the planning cycle followed by the rest of the response organization. The importance of cooperation and communication within the UC and the response organization was aired in a 28 February discussion initiated by the FOSC. That discussion is documented in the UC Decision Memo of 1 March in Appendix A.

This situation was probably exacerbated by the fact that the RP was a professional salvage expert who naturally focused his attention almost solely on salvage issues. There also often seemed to be apathy or at least a lack of appreciation on the part of the RP regarding the importance of integrating salvage into the overall decision making process of the ICS and the UC as well as into the broader response operation. Concern over this issue was expressed by several participants in the ICS including some members of the RP's team.

The SUPSALV representative was technically very capable, with strong naval architecture skills and a salvage/diving experience base. He focused much of his time on the vessel damage and

stability modeling and assessing the RP salvage team naval architect's recommendations. These functions were important but left him little time for participating in actions being taken by the salvage team onboard. As a result, he was unable to monitor decisions regarding mobilization of other salvage vessels or gear that were being made by the RP's salvage master and communicated directly to the RP. This situation may have been relieved if an additional SUPSALV representative had been assigned to the Salvage Group as Supervisor or at least as a member of the Salvage Group.

To ensure that the FOSC was properly apprised for the remainder of the response, the Coast Guard assigned from three to five officers to track the structural conditions of the two sections of the vessel and to monitor the activities of the salvage team with regard to the bow section removal planning and operational preparations.

We recommend that in future responses the ICS structure be managed to ensure that the FOSC has a representative in a position to monitor all facets of the salvage and stability operations, and a team with current information on problems being encountered and tactics being employed.

1) The Salvage Group should be in the Operations Section.
2) A Navy SUPSALV representative should be the Supervisor or Assistant Supervisor of the Salvage Group
3) Coast Guard marine inspectors/naval architects should board the vessel for an independent survey as soon as practicable and safe
4) The FOSC should assign a team to the Salvage Group (rather than as a technical advisors to Planning or Operations). This team at a minimum should be comprised of the following personnel:

Resource	ICS Role
USN SUPSALV	Salvage Group Supr (or Asst or Branch Director)
USCG MSC Salvage Team	Naval Architect – stability & damage analysis
USCG MSO Marine Inspectors	Onboard structural inspection

Salvage masters traditionally work independently under "no cure, no pay" contract conditions, lending to the profession a mind set that tends toward limiting information flow. Many of the most experienced salvors, and we arguably had several of the world's best at the NEW CARISSA response, appear to hold the opinion that emergency response to these types of incidents in this country is mistakenly focused on the oil spill clean up contingency requirements of OPA 90. They clearly advocate instead for a focus on the "real" cure--salvage. There is significant validity to that position. However, salvors must understand that in the United States, salvage activities to remove a substantial threat of discharge under the authority of the National Contingency Plan are under the direction of the FOSC, who is entitled to any and all information related to the salvage decision making process. That means that salvors need to participate in the ICS incident management system adopted by the Coast Guard.

One example of the problem that can occur when salvage planning lacks FOSC oversight was the salvor's decision to delay the first tow of NEW CARISSA in order to wait for the arrival of a floating Dyneema tow line from Europe. This decision was made without FOSC "salvage

expert" review. The second tow was made successfully without the Dyneema line, using line available through normal USN SUPSALV sources of supply.

We recommend that future Area PREP exercises focus on this Salvage-ICS relationship. Specifically, exercises should focus on improving the ability of the Salvage Group to (1) function in the Operations Section, (2) participate in the planning cycle, and (3) work closely with salvage industry experts to represent the best interests of the FOSC.

We recommend that Commandant (G-MOR) meet with national leaders in the salvage industry to address the organizational, functional, contractual and communications issues related to spill responses, and to evaluate the adequacy of salvage assets for rapid response deployment to the scene of stranded vessels threatening to discharge a hazardous substance into the waters of the United States. A meeting with salvage leaders would help the Coast Guard gain a better understanding of the seeming reluctance on the part of salvage masters to participate in the planning cycle requirements of the ICS management scheme and to accept direct involvement of FOSC representatives in monitoring tactics being employed.

We also recommend that G-MOR, through our public/private partnership initiative, identify and implement a funding system which would provide rapid salvage vessel response coverage to protect the environmentally rich and sensitive coast of the United States.

A final important question related to salvage is the extent to which the USCG may incur a liability when FOSC involvement in decision making results in "no cure."

Chapter 13 Northwest Area Contingency Plan

The Northwest Area Contingency Plan (NWACP) and the Geographic Response Plans (GRPs) discuss in general terms most of the significant issues that arose during the NEW CARISSA response. Throughout the NEW CARISSA response, the UC decisions and actions comported with the guidance in the NWACP.

The Initial Assessment provided by the RP included the information contained in the Check List provided in the ACP. Immediately upon being notified of the incident, the CG began establishing a Command Post in North Bend/Coos Bay along with the RP's representatives, Gallagher Marine Systems and Coos Bay Response Co-op, and numerous other federal and state agencies. This action is consistent with the provision on page 1-4 of the ACP: “Federal and state rules require that a Responsible Party (RP), or spiller, must be able to manage spills with a predesignated response management organization that accommodates a unified command structure in recognition of federal, state, tribal, or local jurisdiction."

The ACP states that NW Area Committee member agencies will manage spill incidents according to the National Interagency Incident Management System (NIIMS) model Incident Command System (ICS). The ICS with a Unified Command was the management system used during the entire M/V NEW CARISSA incident. All Sections of ICS were engaged and their duties followed those outlined in both the NWACP and the Oil Spill Field Operations Guide (FOG).

The Regional Response Team was activated for this response. The FOSC consulted with the RRT on the potential use of dispersants as provided in the NWACP Section 4622 page 4-26 and on the use of the in-situ burn. The RRT was instrumental in obtaining rapid support for the burn from senior levels within the affected agencies.

In-situ burning is discussed in the NWACP. The checklist for in-situ burns in the NWACP helped facilitate a quick decision by the UC. (See the In-Situ Burn chapter in this FOSC report for additional information on use of the NWACP and for a more thorough discussion of the decision-making process and technical challenges of the in-situ burn.) The UC determined that it was safe to conduct the burn given the conditions involved in this incident. Once the decision was reached by the UC, they followed the guidance on page 4-39 to ensure the exposure limits from the burn were safe to human health. Air monitoring conducted in the area showed that particulates in the smoke did not reach levels that would harm the public.

Safety of personnel was a priority objective for the UC. In accordance with the NWACP discussion of safety equipment, all necessary safety gear was provided to personnel working the incident (e.g. rain gear, gloves, goggles, overboots, Tyvek suits, exam gloves, and first aid kits.)

The Operations Section and the Planning Section coordinated to develop Tactical Response Options as described in the ACP on page 3-14.

The Geographic Response Plans for the Southern Oregon Coast were valuable with respect to logistics information, sources, resources and the location of sensitive areas. Environmental protection was a high priority with the UC, and the plans were used to identify booming locations. The value of the geographic response plan is reflected in the fact that in Waldport we implemented most of the strategies identified in that document to protect public resources. However, the information in the geographic response plans is somewhat dated and in places is incomplete. They should be updated and consideration given to storing the information on computers using emergency management software.

Chapter 14 Public Versus Private Equipment

During the response to the grounding and subsequent oil spill of the M/V NEW CARISSA a large amount of specialized equipment was used. As in any case of this magnitude, the equipment was a mix of public agency equipment and private contractor equipment. Privately owned equipment was contracted for and employed when it was safe, readily available, and effective. Publicly owned equipment was only used when privately owned equipment did not meet these criteria. On this response there were four primary instances where government owned resources were used to supplant or significantly augment privately owned equipment. In this section the selection and use of government owned equipment will be discussed.

Wireless Communications Equipment: The demand for an effective and dependable method of wireless communication equipment during this response was enormous. In the early stages of this response both Coast Guard owned radio equipment and an Oil Spill Response Organization's communications suite was employed. Line of sight communications were hindered by interference from the varied terrain around Coos Bay, the command post's walls and the ship's hull. The recently signed Memorandum of Understanding between the USCG and the National Interagency Fire Coordination Center, located in Boise Idaho, was used to bring in a large cache of hand held radios and deployable repeater sites. The repeaters were deployed around Coos Bay to give those using the government radios excellent, uninterrupted radio coverage within about 30 miles of the grounding site. These radios were made available to any member of the Unified Command staff through a simple sign out procedure. The private communications suite was ineffective due to a variety of problems and was withdrawn from use after about 2 weeks.

Helicopter Assets: The hull sections of NEW CARISSA were accessible only by air for the bulk of this response and air assets played a major role in the successful resolution of this case. Privately owned helicopters from as far away as Eureka, California were engaged for logistical support during the towing, salvage, and lightering operations in addition to being the primary asset for pollution overflights. Coast Guard helicopters were used primarily for personnel transfers to and from the ship because their unique equipment made them particularly suited to safely conduct these operations in the severe weather encountered. Coast Guard Air Station North Bend safely conducted in excess of 300 personnel hoists to and from the NEW CARISSA.

Lightering Equipment: During this response the opportunity to lighter the forward section of NEW CARISSA presented itself just prior to the attempt to remove the vessel from the strand off of Coos Bay. The Unified Command decided to use primarily government personnel and equipment to lighter as much oil as possible on a "not to interfere basis" with the effort to remove the forward section of the vessel from the strand. The reasons for the decision are discussed in the Unified Command's decision memo titled "Fuel Oil Lightering" which is in Appendix A. There were a number of private contractors who offered to provide some equipment in this effort but none which offered a "total package" of personnel and equipment capable of removing highly viscous, unheated oil in the short opportunity that was presented. Consequently, a team consisting of the Pacific Strike Team, Navy Supervisor of Salvage, Smit Americas, Marine Pollution Control Corporation, Gallagher Marine, and a local timber-yarder

operator were brought in to attempt to lighter the cold oil during this emergency phase of the operation. (See Chapter 3 and Appendix B for a discussion of the lightering operation.) Fred Devine Diving and Salvage along with Global Diving and Salvage conducted the lightering operation of the stern section in the non-emergent phase of the operation.

Explosive Ordnance Operations: The U.S. Navy's Explosive Ordnance detachment from NAS Whidbey Island, WA was used twice during this operation. In the first instance they were brought in to set the remaining fuel on the NEW CARISSA afire, and the second time they were tasked with sinking the vessel after it was towed off the coast. In both cases, this government asset was used simply because there were no private contractors, that the Unified Command could identify, who were capable of safely doing the tasks identified under those conditions in the short amount of time available.

Chapter 15 Radio Communications

The exemplary performance of field VHF/UHF communications equipment was critical to the response. It provided vital communications between the command post and personnel on the stranded vessel, aircraft, and field supervisors and crews spanning over 45 miles of beach. Initially, the Communications Officer from Coast Guard Marine Safety Office-Group Portland (MSO/GRU Portland) responded to the scene with a base station and one repeater. By day two, this radio equipment was in place and communications were established between the command post and the vessel, Coast Guard helicopters, and personnel working over 10 miles of beach. After oil was released and the geographic scope of the divisions became greater, it became apparent that the operation would require communications capabilities that could span many more miles of beach. We requested a communications specialist from the Pacific Strike Team, who is uniquely trained to a level of proficiency sufficient to select, install and program the portable radios and repeaters that are available through the National Wildfire Coordinating Group, National Interagency Fire Fighting Coordination Center (NIFCC), located in Boise, Idaho. This specialist was able to select and install appropriate PST and NIFCC radio equipment, including multiple repeaters, and to establish UHF links between repeaters. These high sites provided extremely reliable communications between field supervisors and the Operations Section Chief at the command post, and between field observers throughout the entire response area and the Situation Unit.

The communications equipment, coupled with the availability of a skilled person to install and program the equipment, was essential to the success of this response. First and foremost, communications played a vital role in safety and medical response. Radio communications provided a reliable means to monitor the movement of people and to request and deliver emergency assistance, should that become necessary. For example, during rising tides and high tides, most of the beach was inaccessible due to heavy surf conditions. Even though the incident safety plan and every Division/Group Assignment form mandated that crews be off the beach one hour prior to and following high tide, there was a risk that a crew or individual could become stranded due to surf, personal injury, or because their vehicle became stuck in the sand. Second, reliable and high quality communications were essential to the overall prosecution of the operation. As one example, timely field observer input was absolutely vital in order for the Planning Section to provide rapid, real time information to the Operations Section.

The significance and importance of having Coast Guard resources capable of performing the communications functions demanded by a major response cannot be overstated. We are well aware that communications failures and inadequacies have plagued numerous responses and exercises. The risk we face without sufficient Coast Guard radio equipment and skilled personnel capable of operating complex repeaters was demonstrated during this incident. The RP brought in an oil spill response cooperative’s communications specialist and truck, and a different radio system than that which the Coast Guard had already installed and was operating. The RP presented a written request to the Coast Guard to dismantle the linked CG/NSF/NIFCC repeater system to avoid duplication of efforts. The FOSC decided that the Coast Guard system would remain in place until comparable coverage and reliability could be demonstrated by the

new gear and notified the RP of this in writing. The CG/NSF/NIFCC equipment was eventually found to be more effective and the other gear was demobilized from the incident.

In summary, we offer the following recommendations regarding radio communications for major pollution and other responses.

1. The Coast Guard should invest in additional cached equipment that is compatible with NIFCC cached equipment--to provide for continued availability when and if summer wildfire seasons place competing demands on the NIFCC equipment cache.
2. The Coast Guard should ensure that mobilization and use of this equipment (multiple repeaters, etc.) is incorporated into all future Area PREP exercises.
3. The Coast Guard should ensure that this cached equipment and specially trained personnel are made available to Coast Guard unit commanders during oil, chemical, or other emergency operations including but not limited to floods, hurricane recovery, and mass casualty (e.g. TWA 800).
4. All Strike Teams should have communications specialists trained to a very high level of proficiency that enables them to independently select, install, program and operate multiple repeaters and associated radios and ancillary equipment.

Chapter 16 Investigations

On 11 February, the Commander, Thirteenth Coast Guard District ordered a One-Man Formal Investigation to examine the cause of the grounding of the M/V NEW CARISSA. The report of that investigation is pending and it is inappropriate for the substantive findings of it to be discussed in this FOSC report.

There was significant confusion and frustration as a result of having two separate Coast Guard components (with different missions) investigating this casualty concurrently. The Marine Safety Office (MSO) in Portland was tasked with discovering the cause of the grounding by the District Commander and the Coast Guard Investigative Service was tasked with investigating the incident as well. The respective roles and responsibilities of Coast Guard personnel engaged in these two types of investigations should be clarified to enhance the cooperation and efficiency of investigators of future casualties, and to make it easier to explain their respective roles to attorneys involved in the investigation.

The amount of evidence collected by the CGIS was extraordinary and for the most part was not directly applicable to the casualty investigation. Duplication and security became a major burden and costly endeavor. Having the ship's crew interviewed by separate entities was confusing and irritated their legal counsel. A considerable and continuing effort was required to persuade the lawyers for the crew and vessel that the formal board was not in collusion with the U.S. District Attorney's criminal investigation. But most importantly, critical witnesses, most notably the Master, were reluctant to testify in the marine safety hearing because of the threat of future criminal proceedings.

The Coast Guard's investigations of marine casualties may have far-reaching results including changes in regulations or statutes, litigation or prosecution, and direct or indirect impacts to the shipping industry. For these reasons, it is extremely important that rigorous procedural and legal practices be adhered to during these investigations. We recommend that G-MOR consider establishing a national "strike team" of Coast Guard personnel with appropriate specialized training and experience to handle investigations of major marine casualties. Personnel who are expert in rules of evidence, subpoena powers, witness/attorney relations, and the Administrative Procedures Act, to cite just some examples, would have been valuable to the MSO investigation team. The CG Marine Safety Manual, which contains useful information on hearing procedures, should be expanded to include information on the Administrative Procedures Act and a check list or flow chart on hearing preparations, including procurement and supply issues.

Chapter 17 The Role of the Navy

The Navy role in the NEW CARISSA response was substantial and unique. Several Navy units participated in this response including the Navy Supervisor of Salvage, the Explosives Ordnance Disposal Mobile Unit ELEVEN Detachment Northwest from Naval Air Station Whidbey Island, WA; the Spruance-class destroyer USS DAVID R. RAY (DD 971); and the Los Angeles class nuclear submarine USS BREMERTON (SSN 698). It is no understatement to say that the Navy's role was essential to the success of this response.

The operational role of the Navy in this response is described elsewhere in this report. See Chapters 2 and 7 and Appendix B.

Access to Navy resources (and Navy access to Coast Guard resources) is provided through an interagency agreement between the Navy and the Coast Guard for Cooperation in Oil Spill Clean-up Operations and Salvage Operations. The agreement was signed in 1980 and defines what resources may be provided and describes a process to request assistance. We recommend that this agreement be reviewed and updated as necessary and consideration be given to updating it on a regular cycle to be established by the National Response Team. (See also the lessons learned at the end of Chapter 7, Sinking the Bow Section.)

Chapter 18 The Role of the State of Oregon

Oregon Governor Dr. John Kitzhaber was supportive of the Coast Guard and the response organization throughout the incident, a fact that helped make the accomplishment of our mission significantly easier. He visited the site of the grounding and the UC, where he asked tough and appropriate questions. He met with the press and in interviews declined to second-guess the UC. The governor expressed strong concern for the environment and the affected communities and at all times was clear regarding his policy and objectives.

The Department of Environmental Quality (DEQ) was the lead State agency for the incident. Mr. Mike Szerlog of DEQ represented Oregon on the Unified Command in a distinguished manner. The active involvement of the State, as reflected by the numerous agencies that participated in the incident, was an important component of the success of this response. Those agencies are listed in Appendix I.

There was public debate in Oregon over the merits of leaving the stern section aground on the beach at Coos Bay as a tourist attraction. However, the governor ultimately determined that this option would be counter to the public interest. The area is environmentally sensitive and is nesting habitat for the snowy plover, an endangered species. The governor sent a letter to the RP to ask the RP's intentions regarding the stern, and demanded that it be removed. He asked the RP to post a bond for $25 million to ensure complete wreck removal.

When the RP did not respond to the governor's letter, the FOSC sent a letter asking the RP's intentions regarding the stern. The RP wrote to Governor Kitzhaber, with a copy to the FOSC, stating their intention and commitment to remove the stern completely, and indicating they were developing a plan to do so and would issue a request for proposals from prospective contractors. Although the RP declined to post the bond as requested, they later stated that they would post of letter of undertaking to the contractor they selected, which would insure their payment.

On 2 April, the FOSC and two staff members met with the governor's staff to discuss the disposition of the stern section of NEW CARISSA. Attendees for the State were the governor's Chief of Staff Bill Wyatt, the Director of Oregon DEQ Langdon Marsh, and the Assistant Attorney General for the Oregon Department of Justice, Kurt Burkholder. The FOSC provided a synopsis of the status of work on the stern. The State wanted to understand whether there was federal authority to compel the RP to remove the stern section from the beach or federal funding for the removal if the RP failed to complete the action. The FOSC described the limits of federal authority derived from the Oil Pollution Act of 1990 and the Federal Water Pollution Control Act, as amended. The FOSC explained that the Coast Guard's responsibility and authority is to protect the environment from the oil, which includes removal of the oil from the ship, removing the oil-laden bow section from the beach, and removal of remaining oil aboard the stern section. The removal and salvage of a wreck from a beach, once it no longer poses a substantial threat to the environment, is beyond the responsibility and authority of the Coast Guard and is not eligible for funding or reimbursement under the Oil Spill Liability Trust Fund.

The governor's office and the Oregon legislature are both conducting reviews of the NEW CARISSA response and are evaluating the State's participation in it. The Coast Guard was invited to and participated in the committee and hearings processes on this subject and members have testified and answered questions about the grounding and the response.

Chapter 19 National Pollution Funds Center

The National Pollution Funds Center (NPFC) was commissioned in 1991 to administer the Oil Spill Liability Trust Fund, a fund established to cover certain oil spill removal costs and damages. The NPFC is an independent Coast Guard Headquarters unit reporting directly to the Chief of Staff of the Coast Guard. The NPFC is the fiduciary agent for the Fund and thus provides funding for several aspects of pollution responses including funding to support the FOSC's response, to initiate Natural Resource Damage Assessments and to compensate claimants who demonstrate that certain damages were caused by oil pollution.

In the early days of this incident, the Finance Section Chief (FSC) served as liaison to the NPFC. The FSC kept staff there informed on management of the ceiling, the number of CG personnel working on the incident, and the status of Pollution Removal Fund Authorizations (PRFAs). The NPFC was eager for frequent updates from the FSC as the incident ramped up and they wanted assurance that specific information would be supplied in pollution reports (POLREPS). As the incident ramped up and the response became more hectic, the demands on the FSC increased to the point that a case manager was needed at the command center to serve as liaison between the NPFC and the FSC, and to help manage the numerous PRFA questions. When the FSC requested a case manager from the NPFC by telephone, NPFC questioned what functions the person would serve, citing that things seemed to be going well from their perspective. The NPFC did not immediately commit to provide a staff person. After a written request was made via POLREP (message), the NPFC dispatched a case manager to assist with the NEW CARISSA response. His expertise and assistance were extremely beneficial.

We recommend that objective criteria be developed to trigger approval for a case manager, should one be requested during a significant response. Examples of criteria include a ceiling of a $1 million, PRFAs exceeding $500 thousand, or having more than four agencies assigned PRFAs. A case manager provides many valuable services, including rapidly addressing NPFC concerns, reviewing PRFAs to ensure they are not being used for NRDA actions, explaining PRFAs to other agencies, and answering specific questions of the UC.

Chapter 20 Oil Spill Liability Trust Fund

P&I Club Oversight

One interesting aspect of this response management structure was the fact that the owner's P&I club, Britannia Club, rather than the Responsible Party (RP), hired the company responsible to manage the spill response. The P&I club's natural desire to see that only legitimate costs were incurred may possibly have served as a disincentive to incur excessive costs or to prolong the response unnecessarily. A management team contracted by the P&I club will presumably be judged by their historical ability to manage responses efficiently for the insurers, which seems to be a very positive evolution in the response management structure. By contrast, in many spills the RP directly hires a contract spill response management team. This structure can sometimes lead to conflicting financial incentives, especially in instances where the OPA 90 liability limit is intact and has been exceeded, and the RP believes that additional costs will be reimbursed by the Fund. Indeed, when it is clear that the liability limit will be exceeded, the response management contractor may face a conflict of interest regarding the duration and cost of the response, since typically the longer the response lasts, the more they earn.

Liability Limit and Allowable Costs

The FOSC recognized early in the response that there was a distinct possibility that the OPA 90 liability limit, if applicable to this incident, would be exceeded. Issues related to managing the response--within the context of those costs potentially being reimbursed by the Fund--were addressed early in the response. These considerations included monitoring the RP's costs, including costs which potentially might not be allowable as response costs (e.g. some of the salvage costs), and maintaining a Coast Guard staff sufficient to assess RP staffing levels and resource allocation. This process was made somewhat easier by the contractual relationship of the response management contractor with the P&I club, as discussed above. There was some initial delay in getting the RP to provide spreadsheets detailing their cost accrual, but it was ultimately resolved.

After the first tow of the bow section to sea was broken, and the bow section drifted ashore at a new site, Waldport, OR, the FOSC directed the RP to maintain a separate and discrete invoice trail for all costs ensuing from the pollution response at Waldport. The circumstances surrounding the breaking of the tow were under investigation, and the Coast Guard's intent was, and remains, to have the option and capability of addressing the pollution response at Waldport, including potential Natural Resource Damage Assessment claims and third party claims and the tow from Waldport as distinct from the other pollution response costs, particularly with respect to potential discussions of allowable costs for reimbursement by the Fund.

Wreck removal itself, when it is not part of a pollution response, is not eligible for reimbursement by the Fund. The FOSC stated numerous times to the RP and the State throughout the NEW CARISSA pollution response that if and when the oil were satisfactorily removed from the stern, the costs of removal of the wreck would not be allowable removal costs under the Fund. The FOSC issued a letter on 20 May indicating that the substantial threat of

discharge had been mitigated and oil removal operations aboard the stern section were complete. (See the chapter on Stern Disposition.)

The State of Oregon is eager to have the wreck removed from the beach and understandably has been concerned that if the cost is not eligible to be reimbursed by the Fund, the RP may balk at the expense of the wreck removal. However, to date the owner has continued to reiterate a commitment to remove the wreck, has hired a contractor to do the job, and the removal work has begun.

One of the tenets of the Oil Pollution Act of 1990 (OPA) is that Responsible Parties are to be held strictly liable for costs and damages from their oil spills, and this is achieved through enforcement of cost recovery and prompt fulfillment of damage claims. But there is a liability limit or "cap," beyond which allowable costs paid by the RP are reimbursed by the Fund. One of the questions raised by this oil spill is whether the liability limit for the owner of vessels is high enough. This issue is concurrently being debated in Congress, and was a subject put directly to the Commandant and Director of the National Pollution Funds Center (NPFC) during recent congressional hearings.

At issue is the statutory formula for determining an RP's liability limit under OPA 90. The initial formula provides for multiplier of $1200 per ton for Tank Vessels and $600 per ton for other vessels. While a $600 per ton cap may appear reasonable on the basis of vessel capacity, a great number of $600 per ton vessels carry predominantly heavy bunker fuels which are among the more pernicious oils to deal with, from a response perspective. Bunker fuels have many characteristics that render them difficult to remove, including viscosity that makes pumping more difficult, tendencies to migrate below the water's surface, and tenacity when in contact with a shoreline (as occurred with oil from NEW CARISSA). These recovery problems make up in response difficulty and therefore cost what such vessels lack in capacity. As a consequence, we suggest that the rationale for different or additional criteria be addressed through the appropriate Coast Guard channels. It would appear appropriate for the Coast Guard to consider development of different or additional criteria to establish the limits to liability. Further, the two tiered limits for barges would seem to merit a similar reexamination, given the probability of relatively high costs to respond a bunker fuel spill. A two million dollar limit for any vessel seems problematic in light of current costs.

The liability limit provided by the National Pollution Funds Center (NPFC) in this response, as well as others, appears to be based upon the initial OPA dollar multipliers stated above. We suggest that the NPFC may want to revisit the limits as provided in section 1004(d)(4) of OPA 90, which describes adjusting the limits of liability to reflect the consumer price index.

Appendix A DECISION MEMORANDA

Not available electronically

Appendix B SUPPLEMENT TO SELECTED CHAPTERS

LIGHTERING

Chapter 3 describes the situation that led to the arduous attempt to lighter oil from the NEW CARISSA prior to its tow to sea. On 18 February the Pacific Strike Team, after a grueling night on the road, arrived at the staging area at 0900. The trucks were offloaded and the equipment was sling loaded and flown out to the ship. A meeting was held with a variety of representatives who would be involved in the lightering operation. It was decided to attempt to rig Navy Supervisor of Salvage (NAVSUPSALV) 6" HYDRO-SURGE hose under a mobile highline (the ship continued to move in the surf even with both anchors deployed) using a timber yarder to keep the hose above the surf during the pumping operation. Smit America was tasked to cut the hole through the skin of the ship to allow the hose to be run from the pump to the tank farm with a minimum amount of head pressure. Gallagher Marine was tasked with developing and coordinating the tank farm operations ashore. The priority set during this meeting was to move as much oil as possible out of fuel oil tank #2 to allow Smit personnel access to the "elephant's foot" in order to weld it shut to prevent the ingress of water into cargo hold #3 during the towing evolution.[1] The secondary mission, once the oil was removed by the Strike Force from #2 fuel oil tank, was to remove as much residual oil from cargo hold #2 as time allowed. Strike Force personnel, without having slept the previous night, worked through the day to prepare the equipment and stage it on the ship. After a full day's work, the Strike Force held a meeting at 2000 to make work assignments and plan the next day's operation. Most got to bed around 2300 with reveille set for 0300. Those who had just arrived had to be berthed in Reedsport, approximately 40 minutes north of Coos Bay, because local lodging was full.

On 19 February, a Strike Force rigging team of 7 personnel was air lifted to the vessel to make preparations for the lightering operation. Two personnel from Smit also were flown out to fabricate stairs and a platform in Cargo hold #3 in order to facilitate cutting a hole in the ship's skin. The team discovered that the bulkhead between cargo holds #2 and #3 was no longer watertight and the oil previously contained in fuel oil tank #2 had floated up and out of the tank and now covered the bottom of cargo hold #3. The plan to rig the pump and hoses from the deck of cargo hold #3 was now deemed unsafe due to slip and engulfment hazards posed by the now free-floating oil. Plans were changed and arrangements were made to lower the pump and hoses into the oil and run the prime

[1.] The "elephant's foot" was essentially the end of the fuel pipe that fed oil from the fuel oil tank to the main engine. This pipe, because the ship was broken in two, had one end open to the sea while the other end, the elephant's foot (so named because of its shape)" was plugged with the oil of the #2 fuel oil tank. The salvor's concern was, that if we successfully removed the oil from that tank we would also remove the oil plug from the pipe allowing sea water unrestricted access to fuel oil tank #2 and cargo hold #3. Consequently the goal established during the initial phase of the lightering operation was to remove enough oil so that the welders could access the bottom of the pipe (the elephant's foot) and seal it off.

mover from the deck of the ship. The Strike Force rigging team stayed on board the ship throughout the day to make preparations for the lightering operation while Strike Force, NAVSUPSALV, and Global Diving and Salvage made preparations ashore.

Over three days, the tank farm was constructed by setting up seven Baker tanks, each with a 21,000 gallon capacity. These tanks were lifted out to the dunes with the sky crane and staged next to each other along the beach with the furthest tank approximately 900 feet from the pump. A Y-valve was fitted at the end of the hose run so that the hose would not have to be disconnected from a tank when the tank was filled. Some modification of the dune area was necessary to properly stage those tanks, and that modification was done after consultation of the Bureau of Land Management.

As the day ended the Coast Guard plan was to work until the hole was cut, and then evacuate the rigging crew out of the hole and walk ashore at low tide. The two Smit welders evacuated via helicopter hoist just before sundown and, unfortunately during the helicopter hoist of the Smit personnel, the lightstand was blown over by rotor wash and damaged. Because there was no longer any usable lighting equipment aboard, Strike Team personnel could not finish cutting the hole (which was almost complete). The Coast Guard Air Station (AirSta) was then contacted to evacuate the seven remaining CG personnel. For safety reasons, the standard operating procedure is that Air Station North Bend only conducts helicopter hoists at night in actual SAR situations and life threatening emergencies. The seven Coast Guard personnel would remain on board that night. Other options to evacuate the personnel were discussed, but because of safety concerns for the crew the decision was made to simply to stay on board. Two Strike Team personnel were assigned to stay on the beach and provide a safety watch for the seven stranded on the ship.

Sat 20 Feb: After spending the night aboard the bow of the NEW CARISSA, the CG team asked to be allowed to stay aboard until the pumping evolution commenced. Each member of that team refused the offer of the first light helicopter evacuation, expressing the desire to get the job done. The two Smit welders were put back aboard in the morning and finished cutting the hole and fabricating the work platform at 1100. About this time, NOAA predicted a severe winter storm by 2000 with gale force winds and rough seas. The CG crew which had remained aboard the vessel overnight was finally removed at about 1400 and a 4 person relief crew was put aboard. The hose was then rigged from the beach using the timber yarder. During this rigging evolution one of the lines from the timber yarder parted requiring yet another modification to the lightering plan. The hose was then attached to the timber yarder’s lines enabling the hose to be lifted and moved as needed but the main weight of the hose was resting on the sand in the surf line.

The pump was lit off at 1530 as the tide was falling and the lightering evolution proceeded through the low tide at 2013 and continued as the tide started to rise. The gale moved in as predicted and the seas started to build. In this stage of the lightering evolution the pump moved mostly the water that had accumulated under a hard coat of oil in the cargo tank. The fuel oil tank itself was neither visible nor accessible due the large

volume of stratified liquid in the cargo tank. The level of liquid in the cargo hold (80'x100') had been reduced by about 4 feet before the top of the fuel tank was finally accessible. The tank farm personnel were decanting during the lightering evolution so it is fairly difficult to give an accurate estimate of the volume of liquid moved but best guess is that approximately 110,000 gals were removed before securing prior to high tide. Concern that the hose would part in the rising surf caused a temporary suspension of the lightering operation at 2330. The rising tide had refloated a large number of deadheads that had been stranded on the beach and these logs were starting to beat on the hose as they washed through the surf. Before securing the pump, water was pumped into the hose in case the hose parted and spilled during the high water. For the remainder of the high tide the timber yarder operator worked to keep the hose out of the surf to avoid the worst of the deadheads and relieve the strain on the hose from the strong current. At about 0400, the block of the timber yarder broke and the hose was left at the mercy of the surf and deadheads.

Sun 21 Feb: As the tide fell preparations were made to resume pumping. At approximately 0600, after a visual observation of the hose, the pump was turned back on. A couple of minutes later one section of hose started to collapse, apparently choked off by the rigging attaching it to the highline that had worked loose overnight, and the pumping operation was again secured. The pump team was flown off, a new 5-man team arrived, the section of hose was replaced, and the pump was relocated from the low end of the cargo hold into the #2 fuel oil tank. To avoid the problems with the high line operation, the hose was anchored in the surf. Lightering started again at approximately 1100. Because the pump was now in the fuel oil tank, thick, pure oil moved through the hose. Once the initial slug of oil reached the Y-valve that had been installed at the tank farm, the booster pump failed. The booster pump was disconnected from the hose and disassembled in an attempt to repair it. The hose was reconnected but it did not take long to realize that the product could not be moved without the booster. A back-up booster pump was dispatched from Novato, California but would not arrive until early the next morning. The pump was moved out of the fuel oil tank and back into the stratified liquid which remained in the corner of the cargo hold. More water/oil mix was pumped. Another 4-man pump team from the Strike Force was flown out to the vessel at approximately 1700. The team from the morning stayed aboard to assist and planned to evacuate through the hole at the next low tide and walk ashore. The remainder of the liquid was pumped out of the cargo hold and the operation secured to relocate the pump back into the fuel oil tank. At that point, the pumping operation was secured because the product in the fuel oil tank could not be moved without the booster pump. Low tide occurred at 2115 but the expected and usual land bridge from the beach to the ship did not form. All hands on the ship evacuated through the hole down a ladder and into an inflatable boat where they were pulled the short distance to the beach.

Mon. 22 Feb: As the lightering crew was packing up to return to the hotel one of the members collapsed from exhaustion and was evacuated to the hospital at approximately 0000. At first light, another lightering team was preparing to go back out to the ship and arrangements were made to install the newly arrived booster pump. Zero visibility that morning resulted in all flight operations being postponed and the lightering operation was

put on hold until flight operations resumed. However, the towline had arrived from Holland the previous night and the UC directed that the necessary arrangements be made to remove the ship from the strand. The word was passed to make the ship ready for sea, button-up the hole in the ship, and remove all lightering equipment. No further lightering operations were conducted on the bow section of the NEW CARISSA for the duration of this response although preparations continued ashore to heat and lighter the oil in the event that the removal from the strand failed.

SINKING THE BOW SECTION

The sinking is summarized in Chapter 7. The following section provides some additional detail to supplement that description of the sinking operation.

The initial scuttling plan submitted by Smit Americas' naval architect called for sinking the bow section using naval gunfire. That plan is provided as enclosure (1). However, the FOSC's naval architect had been researching this plan and had concerns about how long it would take to sink the bow section in this manner. These concerns, along with recommendations on how improve the scuttling process, are documented in enclosure (2).

The best way to scuttle the vessel would have been to use the ship's seawater intakes and piping systems to flood the internal spaces. However, because all the bilge, ballast, and fuel oil manifolds were in the engine room and had been separated from the bow section when the vessel broke in two, flooding could not be initiated using the ship's systems. Also, for some reason, seawater did not appear to be flooding into the bow section through the ruptured piping systems, at least not into the 4 cargo holds that comprised most of the buoyant volume. One explanation is that the bilge piping for the cargo holds was probably fitted with check valves, and these would have prevented seawater from flooding into the cargo holds.

Another way to scuttle the vessel would be to have special scuttling fittings installed in the vessel by the salvage workers. Once the vessel arrived at the scuttling site these fittings could then be opened to flood the vessel. However, since the hull structure had sustained damage there were no guarantees that the vessel would have safe stability characteristics when it arrived at the scuttling site. It was likely that it would be quite risky to put salvage workers down inside the hull structure to open these fittings, so this scuttling method was not pursued.

The next best way to ensure the bow would sink quickly but with minimal release of oil was through carefully positioned explosive charges. The RP was asked about the possibility of hiring a commercial salvage company to perform this task, but the FOSC was informed by the RP, Mr. Bill Milwee, that none of the commercial salvage companies were interested. The Navy EOD team was then contacted and agreed to plant the explosives. This was the same unit that initiated the in-situ burn at the Coos Bay

grounding site. A detailed after-action report on their involvement in the scuttling process is provided as enclosure (3).

Naval gun fire support was originally to have been provided by the U.S. Coast Guard Cutter HAMILTON (WHEC-715). However, that ship was released to carry out other Coast Guard missions after repeated delays in towing the bow section to the scuttling site. The Marine Safety Division and the Operations Division in Coast Guard District 13 then requested help from the Navy, which agreed to assist with the operation.

A detailed memo to identify difficulties and provide recommendations for scuttling the vessel was drafted by a Coast Guard naval architect who was the lead marine inspector for the NEW CARISSA, and the Planning Section Chief for the UC who is an industrial hygienist. This memo was completed on 9 March, and is provided as enclosure (4). A copy of this memo was sent by facsimile to the Commanding Officer of the DAVID R. RAY; the Commander, U. S. Navy Third Fleet; and Navy EOD Mobile Unit Eleven, to help them plan for this mission.

In addition to the EOD team and MSO Portland's naval architect, the scuttling cruise included a Coast Guard HH-65A helicopter that was flown down from Air Station North Bend, OR, with a four-person crew led by LCDR Phil Ross. The helicopter and its crew embarked on USS DAVID R. RAY as the ship was leaving San Francisco Bay. It provided helpful reconnaissance at the scene of the sinking and lowered the scuttling team onto the bow section.

LCDR John Cushing boarded the DAVID R. RAY to act as the FOSC's representative and Technical Advisor to the Navy scuttling team. During that morning, LCDR Cushing met with the Commanding Officer of the DAVID R. RAY, CDR Cliff Perkins, and briefed him and several of his officers on the condition of the NEW CARISSA and discussed the scuttling process. On the afternoon of 10 March, LCDR Cushing met with LT John Moulton and his six-person EOD team to discuss the condition of the NEW CARISSA and plan how to position the use of explosives for sinking the vessel. One of the main topics discussed was whether it would be safe for the EOD team to go aboard the vessel and go down inside the cargo holds to place explosives, since that would be the best way to ensure the success of the mission. A number of safety concerns were discussed, involving confined space entry, structural integrity, and stability. It was decided that several plans should be devised, and the final course of action would not be determined until the scuttling team was on scene and could assess the condition of the vessel. Unless the stability characteristics looked extremely favorable, the EOD team would limit their activity to the main deck and lower the explosives into position using ropes. If it was deemed too dangerous to put any personnel aboard the vessel, the team would use a small boat and attempt to rig explosives along the sides and underneath the vessel using magnets and hog lines.

Later in the afternoon of 10 March, LCDR Cushing and LT Moulton gave a briefing in the Wardroom to the Commanding Officer (CO) of USS DAVID R. RAY, about 30 of the ship's senior personnel, and a television crew from KOMO 4 News in Seattle. This

briefing covered the condition of NEW CARISSA as well as the various scuttling plans. The CO commented that his primary concern was safety, and he was extremely hesitant to let any personnel go down inside the hull structure.

On the evening of 10 March, LT Moulton and his EOD team divided up the 380 lbs of C4 plastic explosives into the charges deemed necessary to breach key locations in the hull plating, tank tops, and main transverse bulkheads. These charges ranged from 20 lbs to 80 lbs in size. They also prepared the ropes and detonation cords so that the charges could be lowered into place if necessary.

At first light on 11 March 1999, USS DAVID R. RAY was approximately 30 NM from the bow section of NEW CARISSA, which was just arriving at the site selected for sinking. The bow was still under tow by SEA VICTORY. At that time, the HH-65 helicopter was deployed to examine the bow section from the air. The bow section was observed to have about a 10 to 15 degree starboard list, and noticeable trim by the stern, thus it appeared the #4 cargo hold had taken on a significant amount of water. The water in the #4 cargo hold, along with the oil/water mixture known to be present at the bottom of the #2 and #3 cargo holds, appeared to have shifted over and settled along the starboard side of these compartments.

The Salvage Master for Smit Americas, who was riding on SEA VICTORY, reported that for the duration of the three-day tow the bow section appeared fairly stable and had not taken any bad rolls. The Master of the Sause Bros. tug NATOMA, which had been an escort vessel for the duration of the tow, was also contacted via radio and he said the stability characteristics had been good and he felt it was safe for personnel to go aboard. Based upon observations made during this over-flight, LT Moulton felt it was safe for his EOD team to go aboard. LCDR Cushing felt it was safe to go aboard, but decided that noone should go down inside the hull structure. LT Moulton and CDR Perkins concurred. It was agreed that all the explosive charges would be lowered into place from the main deck using ropes. A final briefing was conducted in the wardroom, and the plan for releasing the tow was relayed via radio to the Salvage Master aboard the SEA VICTORY.

On the morning of 11 March, the six-person EOD team led by LT Moulton and LCDR Cushing were lowered onto the bow section of NEW CARISSA from the HH-65 helicopter, along with the 380 lbs of C4 plastic explosive charges. [Note: Lowering personnel from a helicopter onto a partially flooded and damaged vessel which is pitching and rolling is dangerous and must have a compelling justification. Personnel should wear helmets, knee and elbow pads, PFDs or survival suits and have radio communication with rescue resources. A small boat should be on scene to assist as necessary.] After a quick safety briefing and survey of the vessel, the team lowered the charges into place using ropes. All doors to the machinery enclosures and cranes were opened to release air that would otherwise contribute to vessel buoyancy. Many of the damaged double bottom tanks that had been pressurized with air were still holding as much as 5 psi of air pressure. After explosive charges were positioned and connected to

detonators, all the air fittings to the double bottom tanks were opened to facilitate the sinking, and all personnel were evacuated.

The explosives were remotely detonated at 1408. Those explosives placed over the tanks probably succeeded in breaching most of them. Additionally, one 80 lb and one 60 lb charge had been lowered down on the outside of the hull along the port sideshell, in way of the bulkhead between the #1 and #2 cargo hold (frame 189) and the bulkhead between the #3 and #4 cargo hold (frame 125), respectively. These charges did not appear to be successful in penetrating the side plating or the bulkheads, based on observations using binoculars from a vantage point about 1,000 yds from NEW CARISSA.

The following enclosures are located in Appendix H in Volume III (not available on line).

(1) "Draft Procedure for Sinking of the Bow Section of the NEW CARISSA," submitted by Smit Americas, dated March 2, 1999
(2) Memo from LCDR John Cushing to the Unified Command, Subj: "M/V NEW CARISSA; Scuttling Recommendations," dated 03/08/99
(3) "After Action Report ICO Explosive Scuttling of M/V NEW CARISSA Bow Section," by Officer in Charge, EODMU Eleven Detachment Three Three, dated 30 Mar 99
(4) Memo from LCDR John Cushing/LCDR Ed Parsons to Scuttling Team, USS DAVID R. RAY, Subj: "M/V NEW CARISSA; Scuttling Recommendations," dated 03/09/99

INFORMATION TRACKING IN THE SITUATION & DOCUMENTATION UNITS

A system of information tracking was implemented by those staffing MSO Portland's Crisis Action Center in the first hours of the NEW CARISSA response which should be of value to others. This system was arrived at after many trying times in the CAC during previous incidents, and was used successfully during a December 1998 incident involving the breakaway of the tank barge Columbia with over 2,000,000 gals of oil onboard. That vessel was retrieved using the Orville Hook, saving the barge just eight miles from the Washington coast.

A system using the standard multi-part ICS message forms was developed. Each person captured all information onto the multi-part form. This information consisted of the usual incident update information, weather, notifications, press inquiries, etc. A situation unit recorder tore off the top copy of the form, recorded the information on a running timeline, and placed that copy in the documentation unit in-box to be filed. The advantage to using this form is that the big picture is captured, while people continue with phone calls, etc. This helps to avert the usual disconnects that occur when multiple people are extremely busy and taking and placing many, many phone calls. The CAC management or, in an expanded ICS structure, the Situation Unit Leader and Plans Section Chief, can at all times have a clear picture of current information, without stopping to debrief. This method was implemented during the first hours of the NEW CARISSA incident, and was continued for the first eight days of the response, while the Coast Guard's incident management team managed the incident. It was very successful and provided for a very detailed timeline of events during those first few days of response activities. It is recommended the Coast Guard implement an ICS protocol similar to this, and mandate its use in all exercises. A specific form could be developed, or the existing message form could be used.

OPERATION OF THE JOINT INFORMATION CENTER

The Joint Information Center (JIC) was established soon after the grounding occurred. This information delivery mechanism was operating well given the dynamic situation, and the constraints of phone lines, computers and personnel. However, an editorial published a week later painted a different picture.

An editorial in the local paper (Coos Bay *World*) on 13 February criticized CG communications about the spill and salvage attempts. That article sparked further stories about a perceived lack of information, including an editorial in Oregon's largest newspaper, *The Oregonian*, with a circulation of 350,000.

It took a concerted effort by the JIC to overcome this perception problem. An editorial board with the *World* was held to discuss the Unified Command's (UC) positions on the varied issues of the response. All three members of the UC attended and the editors and reporters of the *World* were pleased with the openness and honesty displayed. The Oregonian staff was provided with a barrage of information from the JIC. Experts were made available to them upon request, and extra time was spent with their reporters to ensure all questions were answered. Extra time was spent to allow their artists to produce detailed drawings of the day-to-day activity. In short, the JIC had to expend tremendous effort to counteract the previous perception of poor communications. This effort was ultimately successful. The *World* later wrote that the information flow had improved significantly in the following week. While the subsequent reporting was not always favorable, the accuracy was greatly improved. The lesson learned is to exert maximum energy to deliver factual information to the press early, and that perception is as important as reality in terms of a community's opinion of the CG.

TRAINING OF JOINT INFORMATION CENTER PERSONNEL

Currently, the Coast Guard has no performance standards for members of a JIC. The only references that contain appropriate standards are the books from the fire service describing position tasks, but many of the qualification factors do not apply at an oil spill. If the CG adhered to the National Wildfire standards, no Coast Guard personnel would be considered qualified to be an information officer at a response using ICS. In this incident, especially during the first 37 days, we would have suffered significantly without the participation of highly trained information officers.

With no standardized requirements, the level of education, knowledge and expertise of staff at an oil spill are highly variable and largely indeterminable by those forming and managing the JIC. Personal experience and exercises are currently the best way to become familiar with the capabilities of "qualified" individuals in your area of responsibility (AOR).

Incident Command System (ICS)

The members of the JIC must be familiar with and work within the ICS. ICS training is a must. Without ICS training, simple things like how to get supplies and equipment through the Finance and Logistics sections is difficult and time consuming. The JIC does not have the time or personnel to duplicate a function already being done elsewhere. Key members of the JIC must know that all paperwork generated by the JIC must be fed to the documentation unit along with all of the photos, videos. This is important for many reasons, including documentation in the event the case goes to court.

Joint Information Center (JIC)
Most members of the JIC received no training in how to run a JIC prior to the incident. Only the members of PIAT and the D13 Public Affairs Officer had extensive knowledge of operating a JIC. It would have been helpful to have people trained in the functions and positions of the JIC and ICS before they arrived. The Oregon Department of Environmental Quality and the Coast Guard have agreed to hold joint training in the future.

Joint Information Center Manual
The JIC Manual drafted by the Public Information Assist Team (PIAT) was used at this response and was of great value. Although it has not been formally adopted by the CG, it is currently under review by the National Response Team for possible adoption. It is flexible enough to be used in any-hazard or disaster response and by any-agency. JIC manuals and training can be obtained by calling the PIAT at 252.331.6000.

Members of the JIC found the organizational structure laid out by the JIC manual to be essential. It provided consistency of function and explicit direction . Photocopies of pertinent sections were given to newcomers to orient them to the JIC and their assignment within the JIC quickly.

Because of the lack of JIC experience, it was very important that a senior, experienced public affairs specialist be on scene to foster and promote the JIC organization. Whenever that guiding hand was missing, the division of labor generally fell apart. It was clear how well things ran when the JIC structure was used and how chaotic things became when the JIC structure wasn't followed.

All of the agencies liked the structure and breakdown of function the manual provides. The benefits of the model were very visible in this incident. Little slipped through the cracks when someone very familiar with the model was in charge. That familiarity allowed for more energy to be focused on production rather than on management.

STAFFING

One of the biggest challenges we faced was the staffing of the JIC in terms of the number of people, qualifications of people, and the turnover rate. There were 15 to 20 people working in the JIC at any given time. The vast majority of these people were from the Coast Guard, Oregon Department of Environmental Quality, and a private public

relations firm hired by the responsible party. The rest were from various federal and state agencies. Not all of these agencies used ICS and not all were familiar with a JIC.

The extreme duration of the event meant we had to try to predict an end to operations and staff accordingly. The reality was that we were forced to adjust demobilization plans each time the response was extended. The ability to attract and retain experienced members at the helm of the JIC was very difficult. With the current draw down of the Public Affairs rate, the pool of qualified personnel is very small. It appeared that the CG has too few experienced and trained public affairs specialists available to assign to a spill response.

Another frequent problem was the removal of specific personnel by the parent agency for internal work. This removed them from the JIC for extended periods of time and compounded the rotation issue. Because of the short rotation and lack of experience, the leadership duties of the JIC were shifted as well. At one point in the response the Information Officer position was held by a contractor hired by the responsible party (RP). The shift in leadership often translated into a shift in JIC focus: from media to community and back.

Rotation

A large problem was the short duration (often only 2-3 days) of most of the JIC members. By the time they learned their jobs and were fully integrated into the workflow, they would have to leave. This was not an issue for most Coast Guard members but it was for many of the other federal and state agency personnel. The one constant in terms of staffing throughout the response was the civilian public relations firm hired by the responsible party. They proved themselves to be highly competent, consistent and professional. Through an internal rotation they made themselves available throughout the response. In future incidents the Coast Guard should explore the ability to hire a similar team of behind-the-scenes professionals. This would not be to take over the role of Coast Guard public affairs specialists, but to support it. A team made up of PIAT and a civilian public relations firm would be a very powerful combination.

Continuity of Information

The real downfall of having personnel rotate out so frequently was a lack of continuity of information and diminished credibility with our media counterparts. In order to help with this problem, the JIC developed a “smart book” for those staffing telephones and as a tool to bring newcomers up to speed more quickly. The smart book should have background material, fact sheets on units, equipment, vessels involved, people, ecological impacts, etc. It should include news releases, talking points, phone contacts, etc. It should be updated continuously with new information, as it becomes available, or as new questions are asked of those staffing the phones.. This collection of information would also be a very valuable tool to help new reporters educate themselves as they are rotated in and out by the various news entities. Much of it can be pre-loaded with basic background information about statutes, contingency planning, spill cleanup technologies, etc. before an incident occurs.

The JIC will need to learn as soon as possible how the Unified Command will handle the following issues: damage claims, reports of oiled wildlife, suggestions for better response methods, general complaints, and solicitations from potential vendors/contractors. Don't wait for those calls to come in before you track that information down. Once collected, this information should become part of the smart book.

INTERACTION BETWEEN THE JIC AND LIAISON OFFICER

The media and the public throughout the Northwest Region (and nationally) craved information about the grounding and every step in the response. But nowhere was the demand for information greater than in the local communities on the Oregon coast. The way in which a community's thirst for information is met, including shaping perceptions of the media and public, is one of the keys to achieving success, or what can be called best response. The Liaison Officer plays a vital role in information transfer during a response. The respective missions and the working relationship between the Liaison Officer and the JIC need to be defined very early. The JIC's role is normally getting information out to the community via the media. The Liaison Officer's role is more likely to be getting information to and from the stakeholder groups relative to the response organization. The information officer and Liaison Officer need to work closely together. The response organization must remember that not everyone gets their information from the media. Therefore, the communities that have been directly impacted need special outreach though town meetings and other venues. This relationship was particularly well established and effective in Waldport.

PHYSICAL FACILITIES

The use of the National Guard Armory in Coos Bay worked very well for the JIC. The space was large enough for all of the 15-20 JIC members. One of the considerations was enough power and phones. Problems with both of these services hampered work at different times throughout the response.

A separate media room was very helpful both for added security and control, and as a workspace for the media. Many media representatives used that space to work on and call in their stories. The media would camp out there during the day and be available for breaking news concerning the response activities. This symbiotic relationship often afforded the Unified Command prompt access to live TV broadcasts, with the opportunity to pass the latest information directly to the public. A security guard was necessary. Without a security guard stationed at the entrance, the command post would have been accessible to the media and their work would have been disrupted.

WEB SITE

Early in the response an effort was made to put information on the World Wide Web. The initial pages were created by District 13. The capacity of this site was quickly overwhelmed and the National Oceanic and Atmospheric Administration (NOAA) brought in a private contractor to develop a more versatile site with greater capacity. This service was a justified expense for the response. NOAA assisted with this because

of their responsibilities and expertise at a spill response. This delivery of information provided precedent-setting public access to an oil spill response. The site contained the usual spill response information; including news releases and digital photos. But never before had the Coast Guard pollution reports been put on display to the public. At a later date, UC decision memos were also added. All of the information captured for the smart book should be made available on the web. The end result of having information on the web translated into phenomenal public access to information, with more than a million "hits" on the NEW CARISSA web site.

SUMMARY OF JIC LESSONS LEARNED

Establish a JIC immediately
Get ICS training
Get JIC training
Use the JIC Manual
Staff for the long haul
Control the rotation of personnel
Use "smart books" for continuity of information
Have a separate media room if possible
Use the World Wide Web to maximize public access to information